

COUNTY COUNCIL OF STIRLING

Public Health Department



ANNUAL REPORT

For the Year 1936


By

T. ADAM, M.A., M.D., D.P.H. (Camb.),

Medical Officer of Health



STIRLING :
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The Department of Health for Scotland, by virtue of their powers under Section 15 of the Public Health (Scotland) Act, 1897, call upon every Medical Officer of Health to prepare an Annual Report under the following heads:—

A.—GENERAL SANITATION.

1. WATER SUPPLIES—quality and sufficiency.
2. DRAINAGE SYSTEM—efficiency.
3. SEWAGE PURIFICATION AND DISPOSAL—methods and efficiency.
4. RIVERS POLLUTION—presence or absence, nature and sources.
5. OFFENSIVE TRADES—action taken.
6. MISCELLANEOUS—any other sanitary matters calling for comment.

B.—HOUSING AND TOWN PLANNING.

1. HOUSING (SCOTLAND) ACTS, 1925 to 1935, AND HOUSING (RURAL WORKERS) ACTS, 1926 and 1931—Proceedings. Include reference to:—
 - (a) Sufficiency of working-class houses;
 - (b) Habitability of existing houses—action taken to deal with defective or uninhabitable houses;
 - (c) Clearance or re-development areas under the Housing (Scotland) Acts, 1930 and 1935—proposals under consideration or contemplated; and
 - (d) Overcrowding—action taken.
2. TOWN PLANNING.—Conditions pointing to expediency of a scheme for the proper control of further development or re-development.

C.—FOOD SUPPLY.

1. MILK. — Administration of Acts, Orders, and Regulations. Include reference to:—
 - (a) Bacteriological examination of samples in terms of Sections 20 and 21 of the 1914 Act—arrangements made—notes on samples taken;
 - (b) Milk consigned from other areas—action taken.
 - (c) Dirty milk (Section 4 (3) of 1914 Act) — measures for detection;
 - (d) Outbreaks of disease attributed to milk or milk products; and
 - (e) Milk grading—progress.

2. MEAT.—Administration of Sections 33 and 43 of the Public Health (Scotland) Act, 1897, the Public Health (Meat Regulations (Scotland), 1932, and the Public Health (Preservatives, etc., in Food) Regulations). Include reference to slaughter-houses.
3. MISCELLANEOUS.—Administration of other Acts, Orders, and Regulations governing the supervision of the food supply, e.g., the Food and Drugs (Adulteration) Act, 1928, the Imported Food Regulations, and the Public Health (Preservatives, etc., in Food) Regulations. Include reference to sanitary condition of premises where foods are manufactured, prepared, stored, or exposed for sale for human consumption. Include particulars of any instruction, propaganda, or other special work on nutrition.

D.—MEDICAL SERVICES.

Include reference (with statistics) to:—

1. MATERNITY AND CHILD WELFARE.
2. SCHOOL CHILDREN—Medical inspection, supervision and treatment.
3. INFECTIOUS DISEASES, notifiable and non-notifiable—incidence—any special action to deal with influenza, pneumonia, measles, whooping-cough, encephalitis lethargica, infective jaundice, psittacosis. Refer to any arrangements for supply of diphtheria antitoxin, to any use made of Schick and Dick tests and any methods of artificial immunisation against diphtheria and scarlet fever.
4. TUBERCULOSIS—Prevention and treatment.
5. VENEREAL DISEASES—Prevention and treatment.
6. NEUROLOGICAL AND PSYCHIATRIC SERVICE (for mental disability in the pre-certification stages)—provision made or contemplated.
7. SICK POOR—
 - (a) Domiciliary Service — arrangements for medical care and nursing;
 - (b) " Mixed " Poorhouses — accommodation, medical and nursing arrangements; how far these are satisfactory, co-ordination with other services.
8. HOSPITALS — General, infectious diseases, sanatoria, maternity and children, convalescent homes, etc. — sufficiency — redundancy — reorganisation — extension.

9. AMBULANCE FACILITIES—Adequacy.
10. HEALTH EDUCATION—Any special action taken.

E.—PORT SANITARY ADMINISTRATION.

Officers concerned should add notes under this heading, including a reference to the fumigation of ships; the issue of deratisation or deratisation exemption certificates, and the work done under the Port Sanitary Regulations (Scotland), 1933.

F.—WORKSHOPS AND WORKPLACES.

Officers are reminded of their duty to refer in their annual reports to the administration of the Factory Acts in workshops and workplaces. Three copies of the form of Tabular Statement of Proceedings under the 1901 Act are enclosed. When completed, one copy should be forwarded to the Secretary of State for Home Affairs (Statistical Branch), Home Office, Horseferry House (Dean Ryle Street), Horseferry Road, London, S.W.1, in advance of the report referred to in Section 132 of the Act; one copy should be transmitted to the local authority; and the remaining copy should be retained for reference.

FOREWORD.

This is my last Annual Report on the Public Health of the County of Stirling.

The occasion therefore seemed opportune to give, in brief outline, as a Preface to the Report, a survey of some of the outstanding developments in the County Health Services during my term of office. It will be seen that it covers a very large part of these services as they presently exist in the County.

The general work of the Department proceeded very smoothly throughout the year. Owing to its transcendent importance, the question of Housing continued to receive more and more attention. In this connection it is pleasing to be in a position to state that practically all the houses in the County scheduled under the 1930 Housing Act during the double survey of 1935 were represented for closure before my retiral in the middle of May, 1937. I should like to record my indebtedness to the Sanitary Staff for their whole-hearted co-operation in the achievement of that gratifying result.

T. ADAM.

September, 1937.

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REPORT

MEMORANDUM BY THE COUNTY MEDICAL OFFICER ON SOME OF THE MORE IMPORTANT DEVELOP- MENTS IN THE COUNTY PUBLIC HEALTH ADMINISTRATION.

The present appears an opportune time to present a short review of the more important developments in Public Health administration in our County since I took up duty as County Medical Officer on 1st May, 1912.

At that time the three District Committees, the Western, the Central and the Eastern, were the Local Authorities for health purposes under the Public Health (Scotland) Act, 1897. In connection with these there were five Sanitary Inspectors. In addition there were two Assistant Medical Officers of Health and one Health Visitor whose duties were mainly connected with School Medical Inspection. The Assistant Medical Officers and the Health Visitor were as a matter of fact appointed and paid by the County Secondary Education Committee. There were no arrangements at the time for school medical treatment. At the present time there are four medical assistants, six health visitors and two full-time dentists and one part-time.

Towards the end of 1912 pulmonary tuberculosis was made a notifiable disease, and consequent upon that I issued a report on its prevention, detection and treatment. One of the recommendations of the report was that a sanatorium be built which would serve for the County of Stirling, the Burgh of Stirling and the County of Clackmannan. A site was purchased at the Barr Wood, between Denny and Stirling, and plans were actually prepared when the Great War broke out and the scheme was for the time abandoned, as was the case with so many other useful and desirable projects. I had also in mind that if the erection of the Barr Wood Sanatorium had gone on, a separate open-air building might have been constructed for the treatment of the so-called pre-tubercular child, but that idea had also to go. Cases of pulmonary tuberculosis had therefore to be sent to existing sanatoria in various parts of the country, but principally to Manor Valley Sanatorium. After the War building costs soared to such unprecedented heights that the idea of erecting a sanatorium at the Barr Wood was abandoned, and the Ochil Hills

Sanatorium situated near Milnathort, was purchased by a Combined Authority comprising the County Councils of Stirling and Clackmannan, and the Town Council of Stirling.

In 1914 non-pulmonary tuberculosis was added to the list of notifiable diseases. Many of these non-pulmonary cases required surgical treatment, and it was felt that it would be practically impossible for the County because of the great expense to set up an institution to deal with them. Before the disease was made notifiable such cases were treated in the voluntary hospitals, mostly at Stirling and Falkirk, and it seemed to me that this practice might be profitably continued under arrangements by which the voluntary hospitals would be paid by the Local Authority for work done. This was really the beginning of co-operation with the voluntary hospitals, and it only required to be begun to compel one to recognise the advantages of such co-operation as against the setting up of separate institutions of our own. It may be pointed out that the County of Stirling was really the first Local Authority in the country to pay the voluntary hospitals for such work.

It was soon perceived that school medical treatment is an essential corollary to school medical inspection. Otherwise much of the value of medical inspection would be lost. Arrangements were accordingly made for dental treatment, and now for years past we have had two full-time dentists and one part-time on the County Staff. Their services are also available for cases arising under the Maternity and Child Welfare Scheme.

For many years we have been fortunate in having as our Eye Specialist, Dr. Gilchrist of Glasgow, who has been responsible for the bulk of the eye treatment among our school children, although three of the Assistant Medical Officers of Health also participate to some extent in this work.

When the County had formulated the Maternity and Child Welfare Scheme under the Notification of Births Act and the Midwives (Scotland) Act, it was found assential to appoint extra medical and nursing staff. In some Local Authorities' areas separate staffs were appointed for the School Medical Inspection services, Tuberculosis services and Maternity and Child Welfare services respectively. It appeared to me that, in a County area especially, such an arrangement would be extremely cumbersome, and would entail much wasteful travelling and unnecessarily large staffs. I therefore issued a report on the Co-ordination of the County Medical and Nursing services in 1921 which advocated the unification of staff, so that there would be one staff to do the whole work. In this plan I had in mind the arrangement

which had worked so well in connection with the sanitary staff whereby the County was divided into areas and a Sanitary Inspector made responsible for all the sanitary work in his area. In Counties similar to Stirling it has been the practice to appoint a Tuberculosis Officer to the staff of the County Medical Officer, but I have myself acted in that capacity all the time.

It is to be remembered that in those days there were really four bodies concerned in the administration of the County Health Services, namely:—(1) the County Council through the three District Committees, (2) the County Secondary Education Committee which was responsible for School Medical Inspection and Treatment, (3) the County Tuberculosis Committee, and (4) the Maternity and Child Welfare Committee. It was only after prolonged negotiations between the four bodies and with the then Local Government Board that my scheme for co-ordinating and unifying the Health Services was at length accepted and approved. On looking back one cannot but feel that it was worth all the trouble, as it forestalled by eight years the Local Government Act of 1929, which of course made provision for co-ordinating these services on a County basis. The result was that when the 1929 Act was passed it meant practically no change in the administration of the County Health services in our County, which served as a model for the rest of the country.

The Department of Health issued a circular on Public Health in connection with the 1929 Act advising Local Authorities on the best lines of administration under the Act. That circular might well have been written with the County of Stirling system in mind.

I have already touched upon our policy of co-operation with the voluntary hospitals or infirmaries which has proved so beneficial alike to the County and to the Hospitals. The scope of this co-operation has so increased that the County Council is now among the largest contributors to the funds of the two Infirmaries at Falkirk and Stirling. All cases of surgical tuberculosis are treated at one or other at a given rate per patient day. In addition, tonsils and adenoids of school children are where necessary excised at so much per case. The County of Stirling is fortunate in having two such fine institutions which are able to give such valuable services. The arrangement between the County Council on the one hand and the two Infirmaries on the other is of course mutually beneficial. In certain similar Counties no such facilities are available, with the result that small institutions called clinics have had to be built at large expense, and staffed, by the County Councils, with the result that treatment costs there are very much higher.

It has always appeared to me a mistaken policy to set up a large number of small institutions for dealing with separate types of disease, and when the Stirling Royal Infirmary was being built there was a difficulty in finding funds to provide a Maternity Home and also a department dealing with Venereal Diseases. On my recommendation the County Authorities and the Hospital Directors agreed that it would be a good thing to make the Infirmary a more complete hospital unit by adding two such departments. The Department of Health was approached, and gave every assistance towards that end. After a good deal of negotiation Stirling Burgh was induced to come into the scheme, and twenty beds were provided for maternity cases, ten for the County and ten for the Burgh. The County and Burgh, with the approval of the Department of Health, made a grant of £600 per bed, and of this a fifty per cent. Government Grant was received by the two Local Authorities. A similar arrangement was made in the case of Falkirk Royal Infirmary, and Falkirk Burgh came into the scheme also. The County Council have twelve beds at Falkirk.

In connection with the establishment of the Venereal Diseases Departments at these two institutions the V.D. Joint Committee spent approximately £8000 at each, and in this case a Government Grant of 75 per cent. was received by the Combining Local Authorities.

These developments all preceded the Local Government Act of 1929, and here again the Act was forestalled, because it was really on such lines that the Act advised Local Authorities to proceed with their hospital policy.

The great boon of these two general hospitals will be fully appreciated only when the Department of Health under Section 27 of the Local Government (Scotland) Act, 1929, calls upon Local Authorities to provide hospital beds sufficient to accommodate all those in need of hospital treatment.

We in Stirlingshire are singularly well placed, because the two fine institutions at Stirling and Falkirk respectively, erected at a cost of at least £250,000, will necessarily in terms of the Act be taken into consideration when the scheme for providing hospital facilities is being formulated by the County Authorities for submission to the Department of Health for approval.

When that time arrives the Ratepayers of this County will be in the fortunate position of having such fine General Hospital accommodation already provided by voluntary means, while Local Authorities without such accommodation will of necessity have to provide it out of the rates.

After the passing of the 1929 Act, Medical Officers of Health were required to make a report on the hospital accommodation available in their areas, and it was strongly suggested that as far as possible there should be centralisation of hospital accommodation, for various reasons. It was pointed out that the motor ambulance had made such centralisation readily possible.

It may be said that motor ambulances in our County were provided immediately after the War, and there is no doubt that especially in urgent cases,—for example, cases of diphtheria—the motor has proved extremely useful in bringing them to hospital and having them under treatment in the shortest time possible.

It was also suggested in my report that sectioned pavilions be provided either at Camelon or Bannockburn, and the Department of Health advised that they be built at Bannockburn Fever Hospital which offered, in their opinion, greater opportunities for such extension, in addition to being more centrally placed. There are now two such sectioned pavilions erected, with additional ground sufficient for another pavilion if and when required. These buildings embody the very newest ideas for such structures, and will make the hospital capable of dealing with a greatly increased number of types of disease. In addition they enable one to look forward to still closer co-operation with the two voluntary hospitals or infirmaries, as the accommodation which has been provided will make possible a ready interchange of patients between the County Hospitals and the Infirmaries, where such is desirable.

For years after my appointment as County Medical Officer the Veterinary inspections were done by part-time officers and were naturally of a more or less casual nature. I therefore from time to time urged the appointment of a full-time Veterinary Inspector, and at length such an appointment was made. The post was really a dual appointment, being under the County Diseases of Animals' Committee and the Public Health Committee. In the latter capacity the routine inspection of the dairy herds was his principal duty. Two full-time Veterinary Assistant Inspectors have since been appointed. There is no question that dairy herds have been greatly improved, and the proportion of tuberculous cows greatly reduced, our ideal being ultimately to have all dairy herds tubercle-free.

There is no County in Scotland better covered with splendid gravitation water supplies and drainage on which the public health so much depends, but favourable as the position at present is we find that the Stirlingshire and Falkirk Water

Board have managed after much arduous labour to inaugurate a scheme which will render secure to their area for all time the whole available waters of the Carron Valley. This scheme has been the result of great foresight, and will solve the whole problem of water supplies for the area for many, many years to come.

Ever since the Great War the Public Health Committee and Staff have given an enormous amount of time and thought to the question of the housing of the working classes, which has been rightly regarded as a problem of transcending importance. For years before the War the provision of working class houses had been tapering off, and during the War such provision practically ceased.

In 1919 I instituted a Housing Survey in the County, the first of its kind in Scotland, and in 1921 I reported the results. It was only then that the County Local Authorities began to perceive what a huge problem there was in connection with housing. The Eastern District Committee on my suggestion resolved to build 600 houses, the Central District 500, and the Western District 80, under the Housing (Scotland) Act, 1919. These figures at the time appeared very large, but in the light of our experience now they were simply a modest beginning to the work.

The terms granted by the Government to the Local Authorities under the 1919 Housing Act were financially more favourable than the terms under any subsequent Housing Act, but unfortunately the costs of building increased to four times the pre-war costs, so that the Government felt compelled to intervene and call a halt in the building programmes of Local Authorities long before these programmes were completed.

In connection with the Housing Acts of 1925 and 1930, there was a Housing Survey with regard to Slum Clearance. As a result fully 2000 houses were scheduled for closure and 1134 built to house tenants displaced.

Up till the end of 1936 the total number of houses already provided or being constructed under the various Housing Acts was 4238. In addition 645 new houses were built as a result of subsidies granted through the Local Authority, and 1112 existing houses were reconditioned and renovated also with the aid of subsidy.

Although these Housing Acts imposed increasing duties upon the Public Health Staff it was thought for a time that by and by the housing problem would become less, and that we would return to more normal times. The Housing Act of 1935 disillusioned us, and so far from the work becoming less

it is to be greatly multiplied by the Public Health Department having to keep in touch not only with the houses but also with the tenancies.

It may here be pointed out that while other Local Authorities were watching the very slow progress of the 1935 Housing Bill through its various stages in Parliament, the Public Health Department of the County were in the midst of a most important Housing Survey and Census, by means of which, by the time the Bill became law, the County Public Health Committee were in possession of all the facts relating to overcrowding. In addition the opportunity was taken to ascertain and schedule the houses which might still be classified in Category III (i.e., uninhabitable), and so might be more profitably dealt with under the Slum Clearance Sections of the 1930 Housing Act. The results have been set forth in the present Annual Report.

Owing to further duties being from time to time placed upon the Health Department, I reported to the Health Committee that the time had now definitely arrived when the Sanitary Inspectors, each in his area, would require additional assistance. That report was remitted to the Public Health Conveners for consideration. The remit was not discharged before my retiral.

A unique feature in our administration was the establishment of sixteen Child Welfare Clinics throughout the County as an important part of the County Maternity Child Welfare Scheme.

Twelve of these have each a convenient central meeting place, where the Clinics are held, some once per week, others once a fortnight.

The other four are in more rural, sparsely populated areas, where it is impracticable to meet at a centre, for obvious reasons, but in these cases the District Nurses visit at the homes and send to the County Medical Officer returns of their work.

These Child Welfare Clinics are mostly associated with the District Nursing Associations, and are managed entirely by local committees.

On the approval of the County Medical Officer a suitable grant is made through the County Public Health Committee towards the expenses of the Clinics.

There is no doubt these have had an influence for good, not only in a Child Welfare sense, but also socially and educationally.

Such a record of achievement and progress in Public Health during these years is one of which the County Council has every reason to be proud.

It is reflected in the enormous improvement in the County's Vital Statistics. In this regard one may take as outstanding examples (a) the great reduction in Infantile Mortality, which is now little more than half what it was thirty years ago, (b) that the Tuberculosis Death-Rate has been reduced to about a fourth during the past 40 years, (c) that Typhoid Fever has of late years been almost non-existent, and (d) the greatly increased average Expectation of Life.

The last School Health Report also showed a very gratifying improvement in the health and general conditions of our County school children, as compared with even thirteen years ago. It may safely be said that there has been a like betterment with regard to the whole population.

The outcry about a decadent race and similar topics has been grossly overdone, probably to a large extent for propaganda purposes. Not that there is no room for further improvement, but the race has never been better than it is at present. That is what might be expected as a result of the almost astounding progress in the general conditions governing the life of the people as a whole. If that were not so, it would cast a sad reflection on the great efforts of the fairly recent past.

On several occasions I have heard it mooted that the housing problem had become so large and of such importance as to merit the appointment of a Special County Housing Department to carry out all the procedure and duties under the Housing Acts.

It may be useful here for me to point out that the administrative position at present in regard to housing is that under the Public Health (Scotland) Act, 1897, certain statutory duties are placed upon the Public Health Committee and the Public Health officials with regard to plans of houses, their construction, water supplies, drainage, and in fact the general environment of the house.

The various Housing Acts really enlarge these statutory powers and make them more specific, for example, the closure and demolition of houses on official representation.

It may also be regarded as axiomatic that Housing and Health are now regarded as so intimately related that it is quite inconceivable that Parliament would ever think of divorcing questions of Housing conditions and environment from the Public Health Committee.

The Committee dealing with all other housing questions in our County is the Property and Buildings Committee, and upon this Committee has been imposed the great task of selecting and negotiating for sites for Local Authority Housing Schemes, the building of the houses, their maintenance, management and control, including letting, etc.—a really big job, carried out in this County, so far as I can judge, with great success.

This review is meant to place on record in broad outline the more important features of the Public Health work in the County since my appointment.

Here I would like to emphasise strongly how much the attainment of the aforementioned favourable results has been due to the progressive outlook of the County Local Authorities and to the hearty co-operation of all the members of the Public Health Staff.

The plan of allocating to each official, medical, nursing and sanitary, an area and entrusting him or her with the work within that area has increased the feeling of responsibility and of enhanced status, which is reflected in the very favourable results.

Another very important event falls to be mentioned, namely, the transfer of the major Public Health services of the Small Burghs to the County Council under the Local Government (Scotland) Act, 1929.

In this one might have expected certain difficulties, but arrangements with regard to staff and allocation of expenditure were amicably settled, and our relations with the Burgh Councils and their officials have continued to be cordial and satisfactory.

I.—GENERAL.

STAFF.

Two changes occurred on the staff of the Health Department during 1936. Dr. Findlay, who had been an Assistant Medical Officer for many years, retired and was succeeded by Dr. Horne. Also Mr. Goldie, who had been County Sanitary Inspector of part of the Central Area since 1916, retired, his successor being Mr. Ferguson. The following is a note of staff at the end of the year:—

Medical Staff.

Medical Officer of Health—Dr. Thomas Adam, County Medical Officer.

Deputy Medical Officers of Health—None.

Assistant Medical Officers of Health—(a) whole-time—Maternity, School Health, Tuberculosis and other Public Health work:—Dr. Margaret Rutherford, Dr. John Riddell, Dr. Ann G. Learmonth, Dr. James L. Horne. (b) Part-time:—Dr. John Gilchrist—School Oculist.

Consultants and Specialists (exclusive of those retained only for duty in the Council's hospitals) — Dr. McFarlan, Consultant (Puerperal Fever); Dr. A. Hunter — Consultant (Puerperal Fever).

Number of Local Medical Officers (part-time) for Poor Law and other Local Health Services—24; Poor Law Services.

Dental Staff.

Dentists (a) Whole-time—Joseph Shearman, School Dental Officer; A. P. McQueen, School Dental Officer. (b) Part-time—Jas. W. Somerville, School Dental Officer.

Nursing Staff.

Number of Health Visitors and Nurses (whole-time)—Six; Maternity and Child Welfare, School Health, Tuberculosis.

Sanitary Staff.

Sanitary Inspectors (whole-time): — W. Sinclair, A. R. Ferguson, James Macfarlane, T. C. Gough, James Stewart, and four small Burgh Sanitary Inspectors for Transferred Services.

Assistants—(Whole-time)—Three.

Public Analysts.

Part-time—Tatlock & Thomson—Water, Milk, Food and Drugs.

Veterinary Staff.

Veterinary Inspectors (whole-time)—J. G. M'Gregor and two Assistants.

Meat Inspectors—J. G. M'Gregor and two Assistants.

Detention Officers—Nine (Sanitary Inspectors).

RAINFALL.

For many years I have been indebted to the observers mentioned in Table I for information kindly supplied by them with regard to rainfall at the various stations, and for 1936 I have again to thank them.

From the table it will be seen that the total year's rainfall ranged from 35.04 inches at Laurieston in the east of the County to 79.55 inches at the Head of Duchray Valley in the extreme west, among the hills in the vicinity of Loch Katrine. Taken all over, the fall for the year was rather less than that for the two preceding years, and was just about 90 per cent. of the average fall for the last twenty-one years.

Table I.—Rainfall during 1936.

Station	Observer	Rain Gauge			Monthly Rainfall in Inches—1936														Total
		Diameter	Height		ft.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
			above Ground	Sea-Level															
Laurieston	Miss Ballantine	ins.	...	...	{ Rain in Inches Days on which rain fell ...	4.88	2.42	2.59	1.25	0.95	1.83	1.81	2.34	3.60	3.07	3.36	3.91	35.01
Buckieburn Reservoir ..	John Cullen, Esq. ...	8	1	0		19	12	10	8	10	9	19	16	11	14	15	17	163	
Buckieburn Filters ...	Do.	8	1	0		6.32	3.55	4.56	1.99	1.17	2.49	1.81	3.78	5.57	6.86	4.18	8.40	53.98	
Little Denny Filters ...	Do.	8	1	0		5.46	2.79	3.37	1.39	0.76	1.89	3.80	3.20	4.02	4.78	3.33	4.38	39.17	
Little Denny Reservoir .	Do.	8	1	0		5.08	2.33	2.91	1.49	0.52	1.92	5.00	3.05	4.18	6.10	1.36	5.80	42.71	
Faughlin Reservoir ...	Do.	8	1	0		5.04	2.48	3.03	1.48	0.58	2.05	4.95	3.02	4.20	5.60	4.37	4.90	11.70	
Earlsburn Reservoir ...	Do.	8	1	0		5.94	3.55	4.41	1.98	0.95	2.28	5.67	4.65	5.57	7.49	5.59	7.45	55.53	
Lea Coll., Bridge of Allan	Wm. Wall, Esq. ...	5	1	0		8.21	3.83	1.70	2.20	1.32	2.41	6.62	3.39	5.00	6.67	4.23	8.36	57.01	
Saughie House, Stirling	J. Fyfe, Esq. ...	8	...	...		5.40	2.21	2.56	0.95	1.18	1.27	3.20	2.38	3.12	3.18	2.65	4.75	32.85
Potmaise Gardens ...	J. McAndie, Esq. ...	...	...	...		5.04	1.56	2.73	1.11	1.26	1.60	3.51	2.94	1.56	3.95	2.86	6.01	36.56
Waterworks, Touch No. 1	David B. Marrs, Esq.	8	...	...		5.76	1.92	3.07	1.51	1.20	1.98	4.29	2.70	5.09	4.81	3.60	6.61	42.54
Waterworks, Touch No. 2	Do.	8	...	...		6.46	2.35	3.51	1.61	1.15	1.93	5.79	2.77	4.71	5.26	4.03	8.25	47.85
Mugdock Reservoir ...	John Cochran, Esq.	...	...	...	5.95	2.22	3.34	1.53	1.20	2.03	6.06	2.59	4.66	4.59	3.61	7.42	45.23	
Blonfield	Do.	...	...	...	23	17	22	10	10	17	22	16	15	18	22	25	217	
Head of Duchray Valley	Do.	...	...	...	5.50	2.50	3.35	1.40	1.45	2.25	1.90	4.05	3.95	6.50	4.25	7.10	47.20	
		...	...	...	7.30	3.30	3.35	1.75	1.35	2.65	4.60	3.80	4.10	6.30	4.95	7.10	50.65	
		...	...	...	5.55	4.40	6.00	2.70	3.45	3.25	9.95	5.50	7.80	11.85	5.75	13.35	79.55	

VITAL STATISTICS.

Population.—At the last Census, in 1931, the population of the County of Stirling (excluding the large burghs of Stirling and Falkirk) was 107,289. For the year 1936 the population of the same area has been estimated by the Registrar General at 110,450, showing an increase for the past five years of 3161 persons—which would appear to be a very moderate estimate, as the natural increase, that is the excess of births over deaths, for the same period works out at 3681.

For reference, the figures for the last Census and also the 1921 Census are given in Table II for each parish and burgh, together with a note of their area in acres:—

Table II.—Population of the County of Stirling as ascertained at the Census of 1931, with Relative Figures for the 1921 Census.

PARISH	AREA IN ACRES			POPULATION.					
				CENSUS 1921			CENSUS, 1931		
	Total	Burghal	Landward	Total	Burghal	Landward.	Total	Burghal	Landward
Denny ...	8,276	368	7,908	9,187	{ 5,130	5,871	{ 9,488 1,768	5,512	5,744
Dunipace ...	5,593	112	5,481	1,814		...			
Gargunnoch	9,862	...	9,862	586	...	586	570	...	570
Kilsyth ...	13,123	280	12,843	10,364	7,600	2,764	10,047	7,551	2,496
Kippen ...	11,268	...	11,268	1,518	...	1,518	1,356	...	1,356
Logie† ...	9,096	774	8,322	5,105	3,579	1,526	4,579	2,897	1,682
St Ninians	37,543	...	37,543	14,812	...	14,812	14,757	...	14,757
Stirling ...	1,825	1,377	448	21,733	21,345	388	22,897	22,593	304
Airth ...	5,561	...	5,561	1,777	...	1,777	2,226	...	2,226
Falkirk* ...	15,111	4,035	11,076	42,762	33,308	9,454	45,443	36,565	8,878
Grangem'th*	8,046	2,736	5,310	18,708	9,723	8,985	20,682	11,798	8,884
Lerbert ...	3,971	...	3,971	12,389	...	12,389	13,029	...	13,029
Muiravonside	7,964	...	7,946	5,758	...	5,758	5,560	...	5,560
Slamannan .	10,856	...	10,856	3,409	...	3,409	2,959	...	2,959
Baldernock.	4,320	...	4,320	763	...	763	674	...	674
Balfron ...	7,821	...	7,821	1,190	...	1,190	1,200	...	1,200
Buchanan .	41,644	...	41,644	585	...	585	438	...	438
Campsie ...	17,860	...	17,860	5,335	...	5,335	5,296	...	5,296
Drymen ...	30,854	...	30,854	1,214	...	1,214	1,128	...	1,128
Fintry ...	13,788	...	13,788	381	...	381	281	...	281
Killearn ...	15,375	...	15,375	1,054	...	1,054	908	...	908
Strathblane.	9,085	...	9,085	1,275	...	1,275	1,161	...	1,161
Total	288,842	9,682	279,160	161,719	80,865	81,034	166,447	86,916	79,531

* The burghal and landward boundaries in these parishes have been altered since the 1921 Census.

† The reason for the apparent large decrease in the burghal population of Logie parish (Bridge of Allan) is that when the 1921 Census was taken the population of the burgh was inflated by a temporary military camp of 611 men.

Births and Birth-Rates.—After correction for transcripts to and from other areas the births numbered 2066, of which 1060 were of males and 1006 of females, giving a birth-rate of 18.7 per 1000 of population, which is just very slightly above the rates for the previous three years, and rather less than those for the three years 1930, 1931 and 1932. For the whole of Scotland the Birth-rate for 1936 was 17.9 per thousand.

Deaths and Death-Rates.—The corrected number of deaths for the year was 1313, which gives a death-rate of 11.9 per thousand — practically the same as for the previous two years. The death-rate for Scotland is given by the Registrar General as 13.4 per thousand.

From tuberculosis (all forms) the deaths numbered 54, giving a death-rate of 0.49 per thousand, of which 36, or 0.33 per thousand were due to tuberculosis of the respiratory system, the remainder being due to non-pulmonary types of the disease. The total tuberculosis death-rate is amongst the lowest yet recorded, being .09 below the average for the past five years. The number of deaths ascribed to "The Principal Epidemic Diseases" was 76, with a death-rate of 0.69 per thousand. This group included 11 deaths from measles, two from scarlet fever, six from whooping-cough, 18 from diphtheria, 33 from influenza, two from cerebrospinal fever, and four from other epidemic diseases.

One hundred and fifty-two children died before reaching the age of one year. This gives an infant mortality rate of 74 per thousand births which, although higher than the previous two years, is just equal to the average of the five years 1931-1935. For Scotland as a whole the infant mortality rate was 82 per thousand births.

For comparison I give below a note of the figures for Births and Deaths from 1930 onwards:—

Year.	Births.	Birth-rates.	Deaths.	Death-rates.
1930	2157	19.3	1196	10.7
1931	2118	19.8	1201	11.2
1932	2160	20.0	1346	12.4
1933	1970	18.0	1325	12.1
1934	2028	18.4	1288	11.7
1935	2029	18.4	1300	11.8
1936	2066	18.7	1313	11.9

Tables III. and IV. give in detail the figures for Births, Marriages, and Deaths, the former Table being concerned with the County Area (exclusive of large burghs) and the latter with the small Burghs of Grangemouth, Kilsyth, Denny, and Bridge of Allan, as well as the landward part of the County:—

Table III.—Vital Statistics, showing the Births, Marriages, and Deaths for the Year 1936, in the County of Stirling (excluding the Burghs of Stirling and Falkirk).

	No. Registered in District	Transfers			Corrected No.			Rate per 1000 of Est. Pop. (Both Sexes)
		Out		In	Both Sexes	Males	Females	
		M. F.	M. F.					
Births (including Illegitimate) ...	1,720	28	21	210	185	1,060	1,006	18.7
" Illegitimate	71	3	...	29	20	60	57	* 5.7
Marriages	738	...	...	...	...	...	...	6.7
Deaths—All Causes	1,096	165	382	...	1313	690	623	+ 11.9
Tuberculosis (All Forms) .	...	..	..	..	54	27	27	0.49
" (Respiratory System)	...	..	..	..	36	17	19	0.33
Principal Epidemic Dis. (Nos. 1-18 of International List) ... ..	...	..	..	..	76	36	40	0.69
Children aged under One Year ... ..	...	..	..	..	152	76	76	† 7.4

* Rate per 100 Births.

† Rate per 1000 Births.

+ Rate adjusted for Age and Sex Distribution = 12.8.

CAUSES OF DEATH.

CAUSES OF DEATH	All Ages.	AGES.											
		-1	1—	5—	10—	15—	25—	35—	45—	55—	65—	75—	85 and over
Typhoid fever (including Paratyphoid) ... M.	...	Y	X	0	1	2	3	4	5	6	7	8	9
Measles ... F.	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ... M.	3	...	2	1	...	...	...	...	...	...	...	...	...
Scarlet fever ... F.	8	1	7	...	...	...	...	...	...	...	...	...	...
Scarlet fever ... M.	1	...	1	...	...	...	...	...	...	...	...	...	...
Whooping-cough ... F.	1	...	...	...	...	...	...	1	...	...	...	...	...
Whooping-cough ... M.	2	2	...	...	...	...	...	...	...	...	...	...	...
Diphtheria ... F.	4	2	2	...	...	...	...	...	...	...	...	...	...
Diphtheria ... M.	9	...	4	4	1	...	...	...	...	...	...	...	...
Influenza ... F.	9	...	3	5	...	...	...	1	...	...	...	...	...
Influenza ... M.	18	1	1	...	...	...	1	2	1	2	3	5	2
Cerebro-spinal fever ... F.	15	...	1	1	...	1	1	1	2	1	2	4	1
Cerebro-spinal fever ... M.	1	...	1	...	...	...	...	...	...	...	...	...	...
Other epidemic diseases (2, 3, 9)* ... F.	1	...	...	...	...	...	1	...	...	...	...	...	...
Other epidemic diseases (2, 3, 9)* ... M.	2	...	...	...	...	...	1	...	...	...	1	...	...
Tuberculosis of respiratory system ... F.	2	1	...	...	...	...	...	...	...	...	1	...	...
Tuberculosis of respiratory system ... M.	17	...	...	...	...	...	...	...	...	...	...	...	...
Other tuberculous diseases ... F.	19	...	...	...	...	4	2	5	2	4	...	...	...
Other tuberculous diseases ... M.	10	...	4	1	1	2	2	3	2	2	...	...	...
Other infectious and parasitic diseases (12, 13) F.	8	1	3	...	...	...	2	1	...	1	...	...	...
Other infectious and parasitic diseases (12, 13) M.	2	1	...	...	...	...	...	...	...	...	...	...	...
Cancer, malignant disease ... F.	67	...	...	...	...	...	...	...	...	...	...	...	...
Cancer, malignant disease ... M.	69	...	...	...	...	...	1	3	16	21	25	7	1
												10	2

*Including typhus fever, smallpox, dysentery, erysipelas, acute poliomyelitis, and lethargic encephalitis.

CAUSES OF DEATH—continued.

CAUSES OF DEATH	All Ages.	Ages.											
		—1	1—	5—	10—	15—	25—	35—	45—	55—	65—	75—	85 and over
Other diseases of genito-urinary system ... M.	11	Y	X	0	1	2	3	4	5	6	7	8	9
Other diseases of genito-urinary system ... F.	7	1	...	...	...	1	...	...	...	2	5	3	...
Puerperal sepsis ... M.	...	...	...	...	...	...	...	...	...	1	2	...	...
Puerperal sepsis ... F.	5	...	...	...	...	2	2	1	...	...	...	...	...
Other puerperal causes ... M.	...	...	...	...	...	...	...	...	...	...	...	...	...
Other puerperal causes ... F.	6	...	...	...	...	...	2	1	...	...	...	...	...
Diseases of skin and locomotor system ... M.	7	2	2	...	...	3	2	1	...	1	...	2	...
Diseases of skin and locomotor system ... F.	6	...	...	...	...	1	...	...	...	3	...	1	1
Congenital debility, pre mature birth, malformations, &c. ... M.	43	42	1	...	...	...	...	...	...	...	...	...	...
Congenital debility, pre mature birth, malformations, &c. ... F.	47	45	1	...	1	...	...	...	...	...	...	...	...
Old Age ... M.	21	...	...	...	...	...	...	...	...	...	3	13	5
Old Age ... F.	28	...	...	...	...	...	...	...	...	...	6	14	8
Suicide ... M.	7	...	...	...	...	...	1	1	3	...	2	...	...
Suicide ... F.	1	...	...	...	...	...	1	...	...	...	...	...	...
Other violence (41) ... M.	40	...	5	2	2	9	5	3	5	6	2	1	...
Other violence (41) ... F.	14	2	1	...	...	2	...	1	2	1	2	2	1
Causes ill-defined or unknown... M.	7	1	...	...	...	...	...	1	...	2	2	1	...
Causes ill-defined or unknown... F.	6	1	...	...	...	...	...	1	...	1	1	2	...
All Causes ... M.	690	76	35	13	6	26	19	37	51	116	173	113	25
All Causes ... F.	623	76	24	11	...	31	19	36	66	91	136	101	26
Both Sexes ...	1313	152	59	24	6	57	38	73	117	210	309	217	51

Table IV.—Vital Statistics, Year 1936, for the Small Burghs in the County and for the Landward Area.

	STIRLING COUNTY.				
	Bridge of Allan Burgh	Denny & Dunipace Burgh	Grangemouth Burgh	Kilsyth Burgh	Landward
Population (Estimated)...	2858	5814	12,719	8587	80,472
Total Births Registered (inc'g Illegitimate)	26	75	155	157	1307
" Corrected (")	31	112	222	198	1503
" " Male	17	53	115	98	777
" " Female	14	59	107	100	726
" " Illegitimate	1	6	10	12	88
Marriages Registered	27	49	80	78	504
Deaths Registered	33	49	113	52	849
" Corrected	35	68	144	80	986
" " Male	13	36	85	41	515
" " Female	22	32	59	39	471

CAUSES OF DEATH

Typhoid fever (including Paratyphoid) ...	...	...	...	...	9
Measles ... ..	...	1	1	...	2
Scarlet fever ... ..	...	...	3	...	3
Whooping-cough ... ..	...	1	2	2	13
Diphtheria ... ..	...	...	8	...	25
Influenza ... ..	...	...	...	...	2
Cerebro-spinal fever ... ..	...	...	1	...	3
Other epidemic diseases ... ..	...	...	1	...	30
Tuberculosis of respiratory system	2	1	1	2	14
Other tuberculous diseases ... ..	...	2	2	...	2
Other infectious and parasitic diseases ...	...	...	1	...	102
Cancer, malignant disease	3	5	16	10	9
Diabetes mellitus ... ..	...	2	...	4	31
Other general dis., chronic poisonings ...	1	2	2	...	99
Cerebral hæmorrhage, &c.	5	5	11	8	26
Other dis. of nervous system and sense org.	...	5	3	...	200
Heart disease	7	7	41	25	28
Other circulatory diseases ... ..	...	...	4	1	36
Bronchitis ... ..	...	2	11	3	64
Pneumonia (all forms)	1	7	9	4	15
Other respiratory diseases ... ..	...	1	...	...	10
Gastric and duodenal ulcer ... ..	...	2	1	...	9
Diarrhœa (all ages)	1	1	1	4	11
Appendicitis	1	1	...	...	1
Cirrhosis of Liver ... ..	...	...	2	...	8
Other diseases of liver, &c. ... ..	...	...	2	...	

* Including typhus fever, smallpox, dysentery, erysipelas, acute poliomyelitis, and lethargic encephalitis.

CAUSES OF DEATH—*continued*.

	SHIRLING COUNTY.				
	Bridge of Allan Burgh	Delny & Dunipace Burgh	Graigiemouth Burgh	Kilsyth Burgh	Landward
Other digestive diseases	1	1	1	3	12
Acute and chronic nephritis... ..	3	2	2	...	29
Other dis. of genito-urinary system ...	1	1	1	...	15
Puerperal sepsis ... ..	...	...	...	...	5
Other puerperal causes... ..	...	1	...	1	4
Diseases of skin and locomotor system ...	...	...	1	1	11
Congen. debil., prem. birth, malform, &c.	1	5	8	8	68
Old age	4	7	4	...	34
Suicide ... ..	...	...	1	2	5
Other violence	2	1	4	2	45
Causes ill-defined or unknown	2	5	...	...	6
All Causes	35	68	144	80	986

AGES AT DEATH

Under 1	1	8	15	14	114
1-4 ... .. .	...	2	6	2	49
5-9	1	1	3	2	17
10-14 ... .. .	...	1	...	...	5
15-24 ... .. .	...	9	2	1	45
25-34 ... .. .	...	1	5	1	31
35-44	2	5	7	6	53
45-54	1	8	13	7	88
55-64	9	8	26	15	152
65-74	11	13	36	23	226
75-84	8	9	26	8	166
85 and over	2	3	5	1	20
Not stated ... .. .	...	...	...	...	...
ALL AGES	35	68	144	80	986

II.—GENERAL SANITATION.

(I) SPECIAL DISTRICTS.

The following is a note of the various Special Districts throughout the County, showing the Services carried out in each:—

Central Area.

Bannockburn and Whins of Milton—Drainage, Scavenging, and Lighting.
 Cambusbarron — Water, Drainage, Scavenging, and Lighting.
 Park Place—Drainage, and Scavenging.
 Cambuskenneth—Lighting.
 Cowie—Drainage, Scavenging, and Lighting.
 Fallin—Lighting.
 Causewayhead — Water, Drainage, Scavenging, and Lighting.
 Buchlyvie—Water, Drainage, Scavenging, and Lighting.
 Kippen—Water, Drainage, and Lighting.
 Gargunnoch—Water.
 Bonnybridge—Drainage, Scavenging, and Lighting.
 Dennyloanhead—Drainage, Scavenging, and Lighting.
 Plean—Drainage, Scavenging, and Lighting.
 Stoneywood and Fankerton—Drainage, Lighting.
 Banton—Water, Drainage, and Lighting.
 Queenzieburn—Lighting.

Eastern Area.

Airth—Drainage, Lighting, Scavenging.
 Avonbridge—Drainage, Lighting, Scavenging.
 California—Drainage, Scavenging.
 Larbert—Drainage, Lighting, Scavenging.
 Lauriston—Drainage, Lighting, Scavenging.
 Limerigg—Drainage.
 Maddiston—Drainage, Lighting, Scavenging.
 Polmont and Redding—Drainage, Lighting, Scavenging.
 Rumford—Drainage, Lighting, Scavenging.
 Shieldhill—Drainage, Scavenging.
 Slamannan—Drainage, Lighting, Scavenging.
 Whitecross—Drainage, Lighting, Scavenging.
 Glen Village—Lighting, Scavenging, Drainage.

Western Area.

Balfron—Water, Drainage, Lighting, Scavenging.
 Balmore and Torrance—Water.
 Torrance—Drainage and Lighting.
 Campsie Glen—Water.

Drymen—Water, Drainage.

Edenkiln—Water.

Fintry—Water.

Killearn—Water, Drainage, Lighting, Scavenging.

Lennoxtown—Water, Drainage, Lighting, Scavenging.

Milton of Campsie—Water, Drainage, Lighting.

Netherton—Water.

Strathblane—Lighting, Scavenging.

(2) WATER SUPPLY.

Mention has already been made of the huge scheme in process of being carried out whereby a reservoir capable of holding 4,000,000,000 gallons is being constructed in the Carron Valley, which will give a daily average supply in dry years of 17,500,000 gallons.

With regard to areas which are outside the present limits of supply of the Stirlingshire and Falkirk Water Board, the following are some notes from the Reports by the Sanitary Inspectors:—

Mr Sinclair reports:—

“ KIPPEN.—The boundaries of this district were extended to include an area at Cauldhame, which had been feued for building. The high pressure water main at Cauldhame was extended into this area with a 2in. pipe.

“ A report was submitted to the Committee regarding the water supply to Strewiebank Farm. This farm is outwith the boundaries of the Special Water District, but the private water supply to same is by arrangement augmented by the Special District supply when necessary. The proprietor wished the farm and adjoining land included within the Special District. This request was not granted, but some concession was made to him regarding the charge made for water.

“ BUCHLYVIE.—The supply proved sufficient, but as in former years some concern was felt during the summer months. The Special District Committee responsible for the water supply to this area gave a great deal of time and thought as to the best methods of augmenting the supply, and it is likely that the proposed auxiliary reservoir, the ground for which was acquired several years ago, will soon be proceeded with.

“ WATER SUPPLIES TO CARSE FARMS, ETC., NEAR KIPPEN STATION.—There is nothing further to report regarding the proposed joint water scheme with the Bridge of Frew District (Perthshire).

“ The Stirlingshire and Falkirk Water Board have a scheme in view which if proceeded with will necessitate the laying of trunk water mains adjacent to this area, and it may be in the future that a good supply will be obtained from this source.”

Mr. Ferguson writes that the work of laying the new water main to properties at Kelvinhead was completed during the year.

“ SHAWEND.—A new well was sunk on ground north of Shawend Cottages and near to the public road, as the previous water supply from a dip well at the south-west side of the houses had failed. The water supply of the new well being of a satisfactory nature, the well was built round with brick and water is now pumped for domestic use.”

In his Annual Report Mr Stewart writes:—

“ BALFRON. — In the Western Area the several villages have their needs supplied by methods most suited to their local conditions, which in Balfron is from springs, which when weak are supplemented by pumping from Glasgow Corporation's Water Conduit. As in former years this combination of sources has met all the demands made. The pumping plant, damaged by frost at the end of 1935, was duly repaired, and with the carrying out of the scraping of the mains, mentioned in last year's report, the premises situated in the higher sections of the village, have had an increased supply.

“ On account of housing development it was necessary to lay 350 yards of 3 inch cast-iron main. This opportunity was taken to link up two principal mains and provide all the necessary control valves and fire hydrant.

“ DRYMEN.—During the year considerable anxiety was experienced on account of a very unexpected water shortage which occurred during the dry summer period. It was suspected that there must be a serious leak somewhere, and on several occasions after the villagers had retired for the night extensive search was made and a burst pipe ultimately discovered on the private service pipe of one of the local hotels. The reason why it had not been apparent was that close beside the burst was a drain surface trap, and the water was entering at the head piece under the surface grating and running down the drain. So soon as this leak was repaired the situation was eased. As a result of this experience, the Local Committee agreed to tap additional springs in the High Wood above Drymen Village, and the engineering, supervision of the building of the necessary intakes, the laying and the linking up the 2-inch ‘ Everite ’ asbestos cement pipelines, were entrusted to this department. The work was completed in the autumn of the year.

“ EDENKILN.—Once again the springs have been sufficient to maintain a supply to the Edenkiln district, there being no necessity to take any water from Glasgow Corporation.

“ CAMPSIE GLEN.—This is a newly-formed Special Water District, and embraces the Village of Haughhead and the Clachan at Campsie Glen.

“ The water supply comes from two copious springs, one bubbling out of the rock in the hill-face at ordnance survey level approximately 900 feet, the other at approximately the 800 feet mark.

“ LENNOXTOWN.—The supply to the village was well maintained, but there is no doubt the Water Superintendent has many anxious moments keeping his reservoir supplied with sufficient water during frost and dry periods. Serious consideration is being given to the problem by the Local Committee, who have instructed consultant engineers to report on the whole question.

“ MILTON.—Milton is favoured with a plentiful supply of water, which has to be filtered. Each filter bed is meantime cleaned out once every month, and so far is coping with the demand. The negotiations in connection with the acquiring of additional reservoir accommodation are still in progress.”

Table V.—Water Analyses (in Grains per Gallon), 1906.

No.	Date of Report.	Where Taken.	Mineral Matter.	Organic Matter.	Total Solids.	Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Ammonia.	Temporary Hardness.	Permanent Hardness.	Total Hardness.	Colour (Loch Katrine Water = 10).	Degree of Sewage* Contamination.
1	22 5 36	Buchlyvie Water Works, Parish of Kippen. (From filter)	5.91	.50	6.44	.04	—	.006	.006	3.72	.79	4.51	9	—
2	22 5 36	do. (From clear water tank)	6.52	.45	6.97	.04	—	.005	.005	3.86	1.15	5.01	8	—
3	13 8 36	Sanchieburn House, Parish of St. Ninians.	6.90	.25	7.15	tr.	—	.005	.005	2.73	2.29	5.02	—	—
4	17 9 36	(From tap in bathroom)	14.70	.35	15.05	1.08	—	.003	.003	1.60	5.98	7.58	—	1 to 24
5	1 5 36	Well, 100 yds. West of Whiteside Collages, Polmont	4.25	2.85	7.10	.06	—	.024	.024	.85	2.27	3.12	60	—
6	4 6 36	Tombrake Farm, Balfroun. From tap in Scullery) ...	8.74	.30	9.04	.59	—	.004	.004	4.85	1.63	6.48	—	1 to 42
7	4 6 36	Stuan Tank, Balfroun ...	7.90	.25	8.15	.24	—	.003	.003	4.02	1.77	5.79	—	1 to 103
8	17 6 36	Spittal Tank, Balfroun ...	9.40	.30	9.70	.59	—	.004	.004	5.18	1.39	6.57	—	1 to 41
9	17 6 36	Stuan Tank, Balfroun ...	7.36	.28	7.64	.24	—	.003	.003	4.92	.65	5.57	—	1 to 100
10	17 6 36	Spittal Pump, Balfroun ...	4.28	.25	4.53	.12	—	.003	.003	2.59	.43	3.2	—	1 to 208
11	29 6 36	Spittal Tank, Balfroun ...	15.10	.35	15.45	—	.004	.005	.009	12.01	—	12.04	—	—
12	29 6 36	Tank, No. 2 Spring, Doughlaga Farm, Drymen Parish	14.85	.38	15.23	—	.005	.005	.010	10.90	—	10.99	—	—
13	29 6 36	Spring No. 1	13.62	.60	14.22	—	.001	.006	.007	9.23	—	9.23	—	—
14	29 6 36	Storage Tank	12.40	.42	12.82	.08	.001	.008	.009	6.20	3.68	9.88	—	—
15	24 7 36	Spring, South Birbiston, Lennoxton ...	7.60	.20	7.80	tr.	.001	.004	.005	4.02	.40	4.42	—	—
16	17 9 36	Knowehead Water Tank, Campsie Parish ...	5.32	1.45	6.77	—	.002	.011	.013	2.65	1.27	3.92	30	—
		Tap at Sink, No. 3 Holding, Campsie Parish ...												

*Note.—Messrs Tatlock & Thomson's regular method of stating their opinion of a water as to sewage contamination is as follows:—"It may be regarded as being equal to a mixture of one part of average sewage with . . . parts of pure water which had been filtered through earth till clear." The figures in the last column of the table give the result according to this method.

WATER ANALYSES.

In all, 16 samples of water for domestic purposes were taken for chemical analysis, as detailed in Table V.

The first two were from the Buchlyvie Water Works, and gave very satisfactory results.

The third sample, from the supply to Sauchieburn House, was also found to be satisfactory.

Sample Number 4 was taken 100 yards west of Whiteside Cottage, Polmont. The sample was from the supply of two houses which were on the list for closure, but the owner undertook to repair the houses and lay on a supply of water from the Water Board's mains. This work is now being attended to.

Following an outbreak of paratyphoid fever, the water supply to a farm was sampled with a view to ascertaining if the water was contaminated. The results were satisfactory, removing all doubt as to any association of the water supply with the outbreak. Other five samples of the village water supply were taken at this time for the same reason, but the results did not justify further investigations along these lines. (See Nos. 5 to 10 in Table.)

An isolated school of the County has had difficulty in maintaining a plentiful supply of water, and investigations were made as to other possible sources for augmentation. In this regard three samples were taken from springs, all of which were reported as satisfactory. (Nos. 11 to 13.)

A change of ownership of a house and the relationship with a neighbour resulted in the neighbour being deprived of the usual source of water, and as another source was tapped, it was deemed prudent to have the water analysed. The analysis was such that it was considered a safe supply for domestic and dietetic purposes. (No. 14.)

Before forming a certain area into a Special Water District, the water supply was sampled and the analysis proved the supply suitable in every way. (No. 15.)

The remaining sample of water (No. 16) was taken from a domestic tap, and though the analysis was satisfactory, arrangements were made to have the water main scoured periodically in view of the fact that the house was situated near the end of the main.

DRAINAGE.

For the northern part of the Central District, Mr. Sinclair, Sanitary Inspector, reports:—

“ **BANNOCKBURN AND WHINS OF MILTON.**—The drainage system is quite satisfactory. Two chokages occurred. One, at Barnsdale Place, Whins of Milton, was found to have been caused by a fracture of a sewer pipe during the laying of a cable by the local Electricity Company. The latter agreed to bear the cost of the repair. The other choke occurred on the syphon at the Bannock Burn, near Bannockburn Mills, and was soon rectified.

“ The new sewer at Balquhiddelock was completed in the early part of the year, and is now in use.

“ The Sewage Works require a good deal of attention in order to obtain a satisfactory effluent. This matter is having the attention of the Committee.

“ The effluent is normally discharged into the River Forth near Taylorton, but owing to a breakdown of the electric pumps at Millhall the effluent has been for the greater part of the year discharged into the Bannock Burn.

“ **CAUSEWAYHEAD.**—Apart from one chokage which occurred on a branch sewer at Dunster Road and which was soon remedied, no trouble was experienced with the Sewers in this Area.

“ A new branch sewer was laid to give efficient drainage for new premises on Stirling Road.

“ In order to relieve the choked sewer above mentioned, it was necessary to expose and open the sewer as the distance from the manholes on either side of the obstruction was too great for rods to be of much use. The opportunity was therefore taken to build a manhole there which will give ample access to the branch sewer and will also be of service should any further building development take place in adjoining feus as a branch sewer to a proposed new road would discharge into the existing sewer at this point.

“ **GARGUNNOCK.**—The village of Gargunnock is the only one in the area which has not a satisfactory drainage system. There is nothing further to add to last year's report with regard to this District.”

Mr. Ferguson, for the Southern Area of the Central District, reports:—

“ **BONNYBRIDGE (CENTRAL).**—The villages of Banknock, Haggs, Longcroft, Dennyloanhead, Head of Muir, Denny, and that part of Bonnybridge in the Central Area are all included in Bonnybridge Special Drainage District. The sewage from Bonnybridge (Central Area) is discharged into the Sewage Disposal Works situated in the eastern part of

Bonnybridge, which is outwith my district; that from Head of Muir, Denny, Dennyloanhead and part of Longcroft is discharged into the Sewage Disposal Works at Underwood, Dennyloanhead, and that from Banknock, Haggs and the remaining part of Longcroft into the Sewage Disposal Works at Longcroft.

“ Improvements were effected at Longcroft Sewage Works inasmuch as the outfall pipe from the settling tanks to the filters was repaired and the course of the pipe at the east-most filter diverted. Further improvements and repairs are still necessary at both of the works, and it is hoped that these will be carried out during the current year. The dried sludge at both of the works was removed at regular intervals by local farmers.

“ Owing to the trouble experienced for some years past with the frequent chokages that have occurred on the portion of the sewer at Dennyloanhead Corner which is in a somewhat unsatisfactory condition owing to subsidence from underground mineral workings, an automatic flushing chamber with a capacity of 500 gallons and regulated to function twice within 24 hours was installed near the end of the sewer some distance from the defective portion. The flushing chamber was put into operation during the month of December, but trouble is still being experienced with sludge gathering in the manholes which require to be cleaned out periodically. The proprietors of two fish and chip shops in the neighbourhood, the drains from whose premises discharge at the point where the sewer is faulty, have been asked to provide settling tanks to intercept the sand and potato parings from their potato washing machines from entering the sewer, and it is hoped that an improvement in matters after this has been done may be reported.

“ EAST PLEAN.—The new sewage works constructed to replace the existing ones were completed and put into operation during the month of June.

“ The works are designed to meet the latest requirements of the Department of Health, and since being in operation have functioned well, and the effluent discharged from them has been of a high standard of purity.”

For the Southern part of the Eastern Area Mr. Gough writes:—

“ The year 1936 may be looked upon as another milestone in the history of the public drainage services in the area. The important drainage developments referred to in last year's report were completed and officially opened in July.

“ At the beginning of the year there were 10 special drainage districts in the area, viz.:—Avonbridge, Bonnybridge (High), California, Limerigg, Maddiston, Polmont and Redding, Rumford, Shieldhill, Slamannan, and Whitecross. No new boundaries were formed, and no extensions made to the boundaries of existing districts. The area is now in the fortunate position of having a modern system of sewers and sewage disposal works in each village, the provision of which has been greatly appreciated by the people.

“ During the year the responsible Committees considered the question of extending the filters at Maddiston and Shieldhill Sewage Disposal Works and also of substituting the spray jet method of distribution of the tank liquor with the latest style of ‘ Fiddian ’ travelling distributors. By the end of the year the Committees had agreed to recommend that this extension, etc., be carried out, and plans were in course of preparation for submission to the Commissioner of Special Areas with a view to obtaining a grant to assist in carrying out the work.”

Reporting on the Western District, Mr. Stewart writes:—

“ The position has not altered materially in the past year so far as the method of dealing with drainage of private isolated houses is concerned, the septic tank still being the accepted interceptor of solid matter, and streams, water-courses and field tiles, the channel of discharge for effluents. I am happy to be able to report that despite the prospect of a heavy burden on their district rate, one village has decided to go on with modern methods of disposal of the sewage

“ In last year’s report, mention was made of flooding due to exceptional thunderstorm rainfall, which resulted in one or two houses being flooded by backwater from a sewer. Steps have now been taken which it is hoped will prevent a recurrence of the unfortunate happening.

“ The Department of Agriculture in pursuance of their ‘ Back to the Land ’ policy, have dealt with their problem of drainage disposal by individual septic tank for each house and the effluent discharged by the best means suited to the local conditions.

“ The village of Killearn is now formed into a Special Drainage District, the prescribed boundaries having been duly advertised. The consultant engineers have their preliminary work well in hand, and it is expected that a start will be made to the work soon.

“ The Mental Institution in Campsie Parish is now more or less completed, and with increased numbers of occupants, the sewage disposal works are being made full use of. The

works consist of screening chambers, settling tank and sedimentation tank. From the latter tank overflow channel, the liquid sewage is pumped into a chamber at a higher level, from which it gravitates to filter beds, being distributed over the surface of same by means of rotating arms. The effluent is collected into a pipeline and conveyed some two hundred yards before being discharged into the River Glazert."

RIVERS POLLUTION.

In my Report for the year 1935, I gave a note of my evidence before the Scottish Advisory Committee on River Pollution Prevention in their Inquiry into Pollution of the River Carron. In 1936 the same Commission held an Inquiry into the question of pollution of the River Forth above Kincardine Bridge, and I was again asked to give evidence.

The following is an abridged copy of my precognition with regard to pollution of the Forth, and omits a considerable amount of detailed information, which need not be given here, as to special districts, non-special districts, and analytical reports on sewage effluents:—

" The present evidence regarding the pollution of the Forth above Kincardine Bridge may suitably be considered a continuation of the evidence previously put before the Scottish Advisory Committee with regard to the pollution of the Carron and its tributary, the Bonny Water.

" AIRTH SPECIAL DISTRICT.—A few years ago it was resolved to construct six sedimentation tanks of a total capacity of 2772 cubic feet with a storm tank of 80 cubic feet. This for a population of 740 has proved ample, the tank effluent being satisfactory, so that there have been no complaints of pollution since the construction of the sewage works.

" PLEAN SPECIAL DRAINAGE DISTRICT.—Here there are 286 houses and a population of 1700. The original Plean Sewage Works were constructed a good many years ago, consisting of grit chambers, sedimentation tanks, and filters. Stoddart's trays were used as distributors on the filters, but before long they became warped and cracked, resulting in a very unequal distribution of the tank effluent. The works for some years past were hopelessly overtaxed, and the results so very unsatisfactory that the Special District Committee resolved upon practically scrapping the old works and erecting works up-to-date.

" The Analysts report that the sewage from the new works is strong, and that all the data from the analysis of the

effluent indicate that it is just the type of effluent to be expected from such a sewage.

“ During the time of the old works the Plean Burn was as a rule almost unsightly, but since the opening of the new works this year there has been no cause of complaint whatever.

“ **BANNOCKBURN AND WHINS OF MILTON SPECIAL DRAINAGE DISTRICT.**—In spite of the fact that the Bannockburn Special Drainage Committee has always made the most wholehearted efforts to carry out their responsibilities they have met with a great deal of opposition and even hostility. As bearing on this point, I am here inserting a copy of a report I made four years ago as follows:—

‘ The question of providing a systematic drainage scheme for Bannockburn came before the Central District Committee through a request by a builder to erect a number of dwelling-houses with water-closets in the year 1901, when there was a population of approximately 2500.

‘ From a report by my predecessor, Dr. McVail, the following facts are noted:—

‘ The outlet at the time for nearly all the drains was into the Bannock Burn, which passes through the village.

‘ The means of drainage in the village consisted partly of open channels and partly of covered drains. Some of these channels were well constructed, but some were not, and some were not even well-kept. The drains consisted partly of stone-built conduits, and partly of spigot and faucet fireclay pipes.

‘ There were about 25 cesspools and about 35 water-closets.

‘ The drainage system did not follow a general plan, nor was it constructed all at once, and it was introduced at a time when water-closets were almost unknown for such a population, and when sinks within houses were also exceptional.

‘ Dr. McVail pointed out that the number of water-closets and of sinks was likely to increase rapidly, and that water-closet sewage especially was obviously unsuited for discharge into open channels or even badly constructed drains. He was therefore of opinion that, while the then existing system of drainage in Bannockburn might have been sufficient for its needs in the past, the time had come for carrying out a scheme on modern lines suited to modern requirements. It would no doubt, he said, be necessary to submit the sewage to purification before discharging it into the Bannock Burn.

‘ As a result of the foregoing report, Messrs. McLuckie & Walker, C.E., Stirling, were instructed in 1902 to submit plans for a scheme.

‘ At the beginning of 1903 Dr. McVail made a further report to the Committee in connection with the proposed scheme, with the result that a piece of ground to the north-east of the village, adjoining the Bannock, was acquired for the purification works.

‘ The work of installing a drainage system with purification works was accordingly begun early in 1904, under the direction of Messrs McLuckie & Walker.

‘ Described shortly, the works consisted of grit chambers, septic tanks, filter and sludge lagoons. They are practically the same to-day.

‘ The filtering material was clinker, over which was distributed the effluent from the septic tanks by means of ‘ Stoddart’s Patent Distributing Apparatus.’

‘ For some years the installation showed very good results, but after a time the distributing apparatus became warped and twisted, especially the trays, so that the distribution was far from uniform, the result accordingly being a lesser degree of purification.

‘ This was reflected in the condition of the Bannock Burn, the waters of which below the works indicated an increasing degree of pollution.

‘ Another point that made for difficulty was that, at the point of discharge of the resultant sewage effluent during my period of office, there has been practically always a very small amount of water in the stream to dilute the effluent. That was due to the dam which, about a quarter of a mile higher up, diverts most of the water, and very often all of it, into the Kerse Mill Lade.

‘ As the population increased, and as more and more water-closets, sinks, etc., were installed, the sewage gradually increased both in volume and in strength. During the summer months especially, when, of course, there was the smallest degree of dilution, the effect of the effluent on the water and bed of the stream became more and more marked, causing undoubted nuisance.

‘ During the years of the war, and for some time thereafter, there was little inclination to give serious thought to such works, but in 1921 the question of improving them was again revived, although nothing was actually done at the time, the drawback being that a good deal of the primary loan was still outstanding.

‘ In 1923, however, the Local Authority had under consideration a proposal to pipe the effluent from the

Bannockburn Sewage Works to a point below where the Kerse Mill Lade water is returned to the Bannock. During 1924 the proposal was given effect to, and the sewage effluent discharged where the Bannock is actually tidal.

‘ The Committee recognised that it might eventually be found expedient to pipe the effluent all the way to the Forth, but even so, the pipe laid would only require to be extended to the Forth.

‘ The proprietor of Steuarthall, after a time, raised the question of pollution again, so that in 1931 it was resolved to lay a pipe right to the Forth.

‘ That was known to be no easy matter, as it would entail the making of a cutting extending to a depth of 18 feet in parts through soft clay.

‘ Besides, it was recognised that the sewer would be extremely liable to fracture, and to have its levels upset when the underlying minerals were taken out.

‘ It was therefore considered preferable to instal electric automatic pumps to raise the effluent, at the point of discharge into the Bannock, to such a level as would enable it to flow to the Forth through a sewer of moderate depth. The works were finished in the first half of 1932.

‘ The electric pumps are duplicate, and so designed as to be set in action by automatic floats which operate at a given level in the large tank which receives the effluent at the side of the Bannock. The pumps are designed to take three times the dry-weather flow.

‘ For many years past, therefore, the Local Authority have been grappling with their sewage problem—and while, in fact, other and far larger local authorities have been discharging the whole of their sewage, and that in an absolutely crude state, into the Forth.

‘ The Special Drainage District now includes Bannockburn and the southern portion of Whins of Milton, and serves a population of approximately 5000. If we take the daily water supply as averaging 30 gallons per head of population, we may arrive at an approximate estimate of the resultant volume of actual sewage to be treated.

‘ The septic tanks are of such a capacity as to give an average period of treatment in them of about eight hours.

‘ The septic tank effluent is passed through the clinker filter, and although the distribution is imperfect the process of purification benefits to some extent.

‘ Five samples were taken and submitted to the County Analysts, Messrs. Tatlock & Thomson, for report. The results are herewith given in full.

Copy of Analysts' Report.

' Labels: ' County Council of Stirling. Rivers Pollution Act. Sample No. 1. 14th September, 1932. Sample of water taken from the River Forth 25 yards below outfall of Bannockburn Sewage Effluent, by J. Barr, Sanitary Inspector. 4.30 p.m., High Tide.'

' County Council of Stirling. Rivers Pollution Act. Sample No. 2. 15th September, 1932. Sample of Water taken from the River Forth 100 yards below outfall of Bannockburn Sewage Effluent, by J. Barr, Sanitary Inspector. 10 a.m. Low Tide '

	Parts per 100,000.	
	No. 1.	No. 2
Dissolved Oxygen taken up from tap water in 5 days .....	.18	.14
Oxygen absorbed from Permanganate in 3 minutes .....	.19	.15
Oxygen absorbed from Permanganate in 4 hours .....	.97	.92
Ammoniacal Nitrogen .....	.010	.009
Albuminoid Nitrogen .....	.029	.022
Nitric Nitrogen	Trace.	Trace.
Nitrous Nitrogen	None.	None.
Alkalinity, expressed as Sulphuric Acid...	1.86	1.86
Chlorides, expressed as Chlorine	2.38	1.02
Mineral Matter in solution	6.53	4.81
Organic and Volatile Matter in solution...	1.02	1.00
Total Solid Matter	7.55	5.81
Mineral Matter in Suspension	11.29	14.37
Organic Matter in Suspension	2.62	2.38
Total Matter in Suspension	13.91	16.75
Colour of filtered water (Hazen Test).....	40	37
Dissolved Oxygen, cubic centimetres, per litre	5.13	5.94

' No. 1. The sample, as received, contained a very large quantity of suspended matter for a river water, and the proportion is fully $4\frac{1}{2}$ times that of the normal standard (3 parts per 100,000) adopted by the Royal Commission in Sewage Disposal. It consists mainly of mineral matter of a clayey nature, with a little organic matter.

' The dissolved oxygen taken up in five days is slightly lower than the figure (0.3 per 100,000) adopted by the Royal Commission as Sewage Disposal, so that it may be classed as a ' clean ' water and one ' fairly representing what would be regarded as the average quality of rivers under ordinary circumstances.'

' The dissolved oxygen actually present is a little under the normal (6 to 7 cubic centimetres per litre), but the water is in quite good condition in this respect, and along with the dissolved oxygen taken up in five days, is suitable for the further purification of any sewage discharged into it.

' The oxygen absorbed from permanganate is fairly high, but this is mainly due to the peaty matter and suspended organic matter. In this connection the Royal Commission state that ' Permanganate is a vigorous oxidising agent which may oxidise substances which would not take up oxygen under natural conditions; at all events, not at a rate which would de-oxygenate a stream,' so that the dissolved oxygen taken up in five days is the deciding factor.

' The free ammonia shows but little pollution with sewage, and the amount cannot be more than 1 part of average sewage in 500 parts of the water.

' The increase in chlorine in this water (taken at high water) as compared with No. 2 (taken at low tide), indicates the presence of 1 part of sea water in 2000 parts of the water.

' The colour of the water was distinctly brown, this being due to peaty matter.

' No. 2. The proportion of suspended matter in this sample is $5\frac{1}{2}$ times that of the normal standard for effluents.

' The other remarks, except that on the chlorine, apply to this sample also.

' Labels: ' County Council of Stirling. Rivers Pollution Act. Sample No. 3. 3rd October, 1932, 10.30 a.m. Sample of Bannockburn Sewage Effluent taken at Pumping Station, by J. Barr, Sanitary Inspector.'

' County Council of Stirling. Rivers Pollution Act. Sample No. 4. 3rd October, 1932, 4.15 p.m. Sample of Bannockburn Sewage Effluent, taken at Pumping Station, by J. Barr, Sanitary Inspector.'

' County Council of Stirling. Rivers Pollution Act. Sample No. 5. 3rd October, 1932, 4.30 p.m. Sample of water taken from the River Forth about 100 yards above the outfall of Bannockburn Sewage Effluent, by J. Barr, Sanitary Inspector.'

	Parts per 100,000.		
	No. 3	No. 4	No. 5
Dissolved Oxygen taken up in 5 days ...	13.2	21.6	.10
Oxygen absorbed from permanganate in 3 minutes	1.35	1.61	.14
Oxygen absorbed from permanganate in 4 hours	3.71	5.80	.61
Ammoniacal Nitrogen	3.29	2.16	.009
Albuminoid Nitrogen .....	.81	1.09	.021
Nitric and Nitrous Nitrogen	None	None	None
Chlorides, expressed as Chlorine.....	4.61	6.74	142.10
Alkalinity, expressed as Sulphuric Acid	21.25	21.60	3.85
Mineral Matter in solution	22.40	27.20	262.30
Organic and Volatile Matter in solution	6.90	10.50	19.40
Total Matter in solution	29.30	37.70	281.70
Mineral Matter in suspension	2.71	2.54	10.04
Organic Matter in suspension	9.45	9.86	2.81
Total Matter in suspension	12.16	12.40	12.85
Colour of filtered water (Hazen Test)...	40	35	21
Dissolved Oxygen, cubic centimetres per litre	None	None	None

' No. 3. The sample, as received, contained a quantity of grey suspended matter, part of which settled out on standing, leaving some which caused the liquid to be strongly opalescent. The sample had also a strong odour of sulphuretted hydrogen, the presence of which was also detected by chemical means.

' The dissolved oxygen taken up in five days is more than six times the general standard proposed by the Royal Commission on Sewage Disposal, but this may be relaxed according to the volume of river water with which it becomes mixed. The oxygen absorbed by permanganate is in the usual ratio to the dissolved oxygen taken up.

' The matter in suspension is four times that of the general standard, but there is nothing else present that calls for special comment.

' No. 4. The sample, as received, contained a quantity of grey suspended matter, part of which settled out on standing, leaving some which caused the liquid to be strongly opalescent, even more so than No. 3. The sample had also a strong odour of sulphuretted hydrogen, the presence of which was found by chemical means. The odour was in this case even more offensive than that of No. 3 sample.

' The dissolved oxygen taken up in five days is nearly eleven times that of the general standard recommended by the Royal Commission on Sewage Disposal, and is as high as that of raw sewage generally. The oxygen absorbed

from permanganate is in the usual ratio to the dissolved oxygen taken up in five days.

' The matter in suspension is four times that of the general standard, and about half of what is usually present in raw sewage.

' It will be observed that both of the samples (Nos. 3 and 4) were in a putrescent condition when received, and this may cause a nuisance owing to the offensive smell.

' No. 5. This sample, as received, contained a large quantity of suspended matter for a river water, and it consists mainly of clayey matter with a small proportion of organic matter.

' The dissolved oxygen taken up in five days shows that this sample may be regarded as a very clean water.

' The ammoniacal nitrogen shows that there is little pollution, if any, with sewage, and the amount cannot be more than one part of average sewage in 500 parts of the water.

' The chlorine present represents 7 per cent. of sea water in the sample.

' The dissolved oxygen actually present is rather under the normal, but the water is quite suitable for the further purification of any sewage effluent discharged into it.

(Signed) R. R. TATLOCK & THOMSON.

' Although the samples were not all taken on the same days, the results give a fairly clear indication of the state of matters.

' The Analysts' remarks on Sample No. 5, taken from the Forth 100 yards above where the Bannockburn sewage effluent is discharged, are extremely arresting, especially the last paragraph, in which it is said:—' The water is quite suitable for the further purification of any sewage effluent discharged into it.'

' In this connection it is to be remembered that at a considerable distance above this point the river receives the whole of the sewage of the Burgh of Stirling in an untreated state.

' The report on the analysis of the two samples of sewage effluent, No. 3 and No. 4, taken at different times of the same day, shows what has been known all along, viz., that the process of purification at the sewage works only goes a certain length, necessitating therefore a greater degree of dilution of the resultant effluent than could usually be obtained in that part of the stream between the Kerse Mill Dam and the point where the Kerse Mill Lade water is returned to the Bannock.

‘ That, in fact, was the sole reason for the Local Authority resolving to incur the large expense of installing a pumping station and extending the sewer right to the Forth, where enormous dilution was available.

‘ Samples Nos. 1 and 2 were taken from the river 25 yards and 100 yards respectively below the point of discharge of the Bannockburn sewage effluent.

‘ Attention is directed to paragraph three of the Analysts’ remarks on No. 1, in which it is stated:—

‘ The dissolved oxygen actually present is a little under the normal (6 to 7 cubic centimetres per litre), but the water is in quite good condition in this respect, and along with the dissolved oxygen taken up in five days, is suitable for the further purification of any sewage discharged into it.’

‘ With regard to No. 2, the Analysts state that the same remarks apply to this sample also.

‘ Far from the River Forth being overtaxed, therefore, by the Bannockburn effluent, the Forth water is almost immediately thereafter in a condition ‘ suitable for the further purification of any sewage discharged into it.’

‘ That is what might be expected, for at the point of discharge of the effluent the River Forth, even at low water, is at least 85 yards wide, and at high water over 100 yards wide. The effluent is a mere dribble as compared with the enormous volume of river water, and such a high degree of dilution is therefore obtained that it is quite inconceivable how fish life could at all be adversely affected. That conclusion is fully borne out also by the analytical results.

‘ With regard to samples Nos. 1 and 2, taken respectively 25 yards and 100 yards below the point of effluent outfall, it should be emphasised that this constituted a very severe test, as obviously there could at these points be no proper admixture of the effluent with the whole volume of the river water.

‘ Mr. Lupton, when sending on the foregoing report to the Department of Health said:—

‘ In addition to what Dr. Adam states there is one point in the history of the works which should be kept in view, namely, that when the works were originally designed, the flow of water in the Bannock Burn was considered sufficient to deal with the effluent from the works.

‘ Shortly thereafter, Grangemouth Corporation impounded the upper waters of the Bannock Burn for their Reservoir at North Third. One million gallons per day are sent down as Compensation Water. Part of the previous flow in the Burn was diverted from a point above the Sewage Disposal Works by means of a lade to Kerse Mill.

When the flow of water in the Burn was reduced after the Grangemouth Works were opened, the weir at the Kerse Mill lade had the effect of diverting a great part of the water in the Burn to Kerse Mill, with the result that very little water passed down at times below that point.'

"As a matter of fact during dry seasons almost the only water below the Kerse Mill Weir available for diluting the sewage effluent came from old mine workings which discharge into the stream a short distance above the Sewage Works.

"In June, 1933, the Department of Health wrote Mr. Lupton calling for the observations of the County Medical Officer regarding the conditions complained of by the fishing tenant of the Stirling Educational Trust, and whether these conditions can be said to constitute a nuisance within the meaning of the Public Health Act.

"On the 12th June, 1933, I accordingly wrote Mr. Lupton as follows:—

' Bannockburn Drainage.

'Referring to your letter of the 5th instant regarding the complaint by the Fishing Tenant of the Stirling Educational Trust, I visited the point of outfall of the Bannockburn sewer into the Forth along with Mr. Sinclair to-day.

'We together watched the effluent discharged into the Forth for fully fifteen minutes, and noted that there were no solids either in the shape of paper or excretal matter coming from the sewer during that time, showing that the sewage works were functioning at least in the way of taking out solids. In 1929 fully three hundred cart-loads of solidified sludge were removed from the works, and it is estimated that even more than that amount is now removed. The effluent itself appeared fairly clear, and any slight opalescence caused was entirely lost within a few yards from the point of discharge. There could hardly be said to be anything but the very slightest smell, certainly not apparent at more than ten yards distant. Although the day was one of the warmest, there was nothing that constituted a nuisance within the meaning of the Public Health Act. Some time ago it was resolved to use the two sedimentation tanks in turn, thus doubling the rate of flow with the object of giving a fresher and less putrescent effluent. This end would appear to have been attained.

'The main station for working the salmon nets is situated almost exactly on the opposite side from the bothy, and well over 300 yards below the point of discharge of the effluent. You will remember that towards the end of last year the same question was raised about the Bannockburn

sewage, and I reported very fully on the matter. As it would be useful, I am herewith enclosing a copy of that report.

‘ From my report it will be noted that samples of water were taken from the River Forth both above and below the point of discharge of the sewage effluent. The remarks of the Analysts on Samples Nos. 1 and 2 are especially to be noted showing that the river has been able to deal effectively with the sewage both at 25 yards below and at 100 yards.

‘ Still better should the condition of the water be at the point where the nets are worked opposite the bothy, which is fully 300 yards down.

‘ There is another fishing station, where, however, the nets are only very occasionally worked, between 30 and 40 yards above the point of discharge of the effluent, but as the nets here are worked at low ebb tide, it will be understood that the effluent is really carried away in the opposite direction from the fishings at that point.

‘ Mr. Sinclair and I scrutinised the banks very carefully to see whether solid excreta had been deposited there, but could see no trace. It is quite conceivable, however, that occasional solids may be deposited on the banks, as of course the whole of the sewage from Stirling Burgh is discharged crude into the Forth.

‘ Towards the end of last year the Stirling Educational Trust in connection with this very question, had four samples analysed by Messrs. Tatlock & Thomson. The Department would probably get some guidance from a copy of the Analyst’s report.’

“ A copy of my June report was sent to the Department, and thereafter visits to the outfall were made by two members of the Department’s staff, viz., Dr. Ernest Watt and Mr. Ross Young respectively.

“ Following upon their reports to the Department, the County Clerk received a letter, dated 12th August, 1933, from the Department, and enclosing copy of a letter sent on the same day to the Clerk of the Stirling Educational Trust.

“ The following is a copy of the Department’s letter to Mr. Morris:—

‘ Bannockburn Outfall Sewer.

‘ With reference to your letter, dated 5th instant, and previous correspondence. I have to inform you that the Department have investigated the complaints made by the Trust against the outfall sewer constructed by Stirling

County Council below high water mark in the River Forth at Taylorton, and have considered reports thereon by one of their Medical Officers and one of their Engineers.

'The Department are advised that the effluent from the sewer leading from Bannockburn sewage plant is not a nuisance or danger or injurious to health in terms of the Public Health (Scotland) Act, 1897.'

"The Stirling Educational Trust had on their own account previously taken samples, and on the 25th October, 1932, Mr. Morris, Clerk to the Stirling Educational Trust, wrote Mr. Learmonth, County Clerk, saying that four samples had been submitted for analysis in connection with the pollution of the Forth, and enclosing copy of Messrs. Tatlock & Thomson's report on the same.

"It would almost appear that the Educational Trust had failed to grasp the significance of the Report, which actually went to show that the Bannockburn effluent had practically no effect on the Forth either as to pollution or as to fish life.

"The Report concluded as follows:—

'We cannot understand how there can be any particular fouling of the nets, as the suspended matter in the sewage effluent is in a fine state of division. It will be observed that there is a large proportion of suspended matter in the water (No. 2) before it receives the sewage effluent, and the small proportion of the latter would raise the suspended matter only to a small extent.'

"With regard to this question of the fouling of the nets, Mr. Sinclair and I took a sample of a deposit found on the right bank of the Forth, taken at a point 45 yards east of the boundary fence of the War Department's premises, near Forthbank Farm, Stirling, and therefore well above the Bannockburn outfall. It consisted of a dark glutinous material, and had been deposited by the Forth water all along the bank. On this sample Messrs Tatlock & Thomson reported as follows:—

"We have made a careful chemical examination of this sample, and we find it to consist entirely of coal tar. Material of this nature will undoubtedly foul fishing nets."

"I have dealt in full detail with the Bannockburn question, because this is the only area in the landward portion of the County above Kincardine Ferry where such trouble has been experienced.

"At The Haugh, Bannockburn, are situated fairly large textile mills belonging to Messrs. Crawford & Company.

Aniline dyes of various colours are used, and occasionally the waters of the Bannock were much discoloured.

“ The water of the stream below the mills had never been shown, however, to be deleterious to fish or animals.

“ In June and September of 1933, samples were taken to ascertain whether the spent liquor or effluent from the dye vats, which was being discharged into the stream, would have any harmful effect on the sewers, if discharged into them, and also whether the effluent would have any effect on the biological processes of the sewage works which consist of septic tanks and filters.

“ The goods are of cotton and wool respectively. In the case of the cotton goods the liquor of the dye vats is alkaline, and could therefore not harm the sewers. The analysts' opinion was also that the spent alkaline liquor would not interfere with the biological action in sewage purification.

“ In the case of woollen goods a small proportion of acid is added to the dye vats to act as a mordant. With regard to this acid effluent, the Analysts were of opinion that the small amount of acid on reaching the sewers would immediately be neutralised by the comparatively large volume of sewage, which is markedly alkaline, and no harm would result either to the sewers or in the way of retarding biological processes.

“ The results of the investigation were placed before the Department of Health, whose analytical chemist, Dr. Wylam, concurred in the foregoing findings.

“ Permission was then granted by the Local Authority for the dye vat effluents to be discharged into the sewers.

“ SPECIAL DRAINAGE DISTRICT OF COWIE, which is a mining village of 504 houses and 2672 inhabitants. Bannockburn Colliery, which gives employment to most of the workers, is quite adjacent to the village. Carnock Colliery, situated about a mile and a half to the east used to employ a fair number. The Colliery proper, however, is closed, but the coking plant is in full use, the coal being obtained from the Bannockburn Colliery.

“ The sanitary conveniences of Cowie used to consist of privy-middens, in fact nothing else at first was practicable, the reason being that the water supply was strictly limited in amount. It was pumped from a lodgment in the Bannockburn Colliery up to a tank situated at such a level that the water gravitated to the various houses on to which it was laid.

" This pit water was not very suitable for domestic purposes, being very hard and to some extent liable to pollution. The water was softened by adding soda and lime but to many people new to Cowie it acted as a purgative for weeks. In these cases a sort of immunity was sooner or later established.

" It was usually very difficult to say whether the enteric cases which occurred in Cowie were due to the privy-middens or to the water supply.

" Before the privy-middens could be abolished it was necessary to have an abundant gravitation water supply.

" One of the good results of the strike of 1921, possibly the only good one from the Public Health point of view, was that the miners definitely ceased pumping the water from Bannockburn Colliery, so that for a short period the village was in dire straits for water. In this extremity the then Central District Committee came to their aid and had the Cowie water-distributing system connected to the Grangemouth main, and ever since Cowie has been blessed with a copious supply of excellent water. At a later date the Grangemouth supply was replaced by an equally good supply from the Stirlingshire and Falkirk Water Board.

" The Alloa Coal Company as owners thereafter agreed with the Local Authority gradually to replace the privy-middens with proper sanitary conveniences, and now the whole of Cowie houses, with the exception of those at Hill Terrace, Murdoch Place, Ardgowan Place and Maitland Place have each a water-closet and scullery. The houses which are excepted have been represented for closure, and may be demolished under the Slum Clearance clauses of the 1930 Housing Act.

" The water pumped from the Bannockburn Colliery goes to the sewers,—there are no sewage purification works, so that the sewers discharge the sewage cum pit water direct into the River Forth near the Railway Bridge to Alloa. There have been no complaints as to nuisance.

" CAUSEWAYHEAD SPECIAL DRAINAGE DISTRICT, which consists very largely of what may be considered residential houses, numbering 226, with a population of 879. The sewers which take the effluent from the Abbey Craig Laundry discharge direct into the Forth.

" The effluent from the Bacon Factory discharges direct to the Forth. The solids from a sumpt are used for manurial purposes.

" The sewers from Causewayhead discharge by three outfalls into the Forth. A sample of sewage has been taken from each, of which in each case the Analysts say the sewage

is weak, the third sample being only one-third the strength of average sewage.

“ The sample of effluent from the washing machines at Abbey Craig Laundry shows practically no domestic sewage, as might be expected. The fatty acids are combined with soda, to form soap, which constitutes 17 parts per 100,000 of the effluent.

“ No complaints have been received.

“ **Special Drainage District of the Village of Kippen**, which is situated ten miles west of Stirling on the ground immediately to the south of the road to Dumbarton. There are 139 houses with a population of 410.

“ The water supply to the village used to be obtained wholly from a bore which is situated in a field to the west. The supply was very limited during dry spells, but was later augmented from the Ballochleam springs situated at a considerably higher level. There is now a copious supply, and Kippen has become a water-closeted village.

“ Some years ago up-to-date sewage purification works were erected which have given satisfaction, for although the oxygen taken up by the effluent in five days is fairly high, and the suspended matter is just less than twice the general standard no nuisance has ever arisen, and the effluent has practically no effect on the waters of the Forth.

“ **Special Drainage District of Buchlyvie**, which, like Kippen, is a rural village, and is situated on the road to Dumbarton, fourteen miles west of Stirling.

“ It consists of 111 houses, with a population of 340. Buchlyvie has for a very long time had a good water supply, but until quite recent years it was in the hands of a private company. The entire water undertaking was then taken over by the Special District Committee at a valuation.

“ Within comparatively recent times many of the houses in Buchlyvie had water-closets installed, mostly with septic tanks or cesspools. By-and-by it was felt that a proper drainage scheme with sewage purification works was necessary, and Buchlyvie has now had this in operation for several years.

“ The report given on the analysis of the sewage of Buchlyvie shows that it is weak. The effluent, however, takes up in five days 3.16 parts of dissolved oxygen per 100,000 (that is fully $1\frac{1}{2}$ times the general standard), but the suspended matter is rather less than the general standard of 3 parts per 100,000.

“ The effluent may therefore be considered fairly good. The only drawback is that it is discharged into the Mye Burn, which during dry seasons may be so low as seriously to curtail the dilution.

“ **Bridge of Allan** is situated about two and a half miles by road in a direction generally north of Stirling. It has 766 occupied houses, with a population of 2900. It is largely residential, and has some very fine mansions.

“ It has also a very fine hydropathic, the Allan Water Hotel, with a Spa attached, which has proved a great attraction for many years.

“ There is an abundant and excellent uplands water supply from the Cocksburn reservoir, into which has also been led a supplementary supply from the Wharrie Burn.

“ Several years ago the Town Council thought it wise to increase the storage capacity of the reservoir by strengthening and raising the embankment. Since then there has never been any shadow of shortage, although during the summer, with watering of gardens, washing of cars, etc., the consumpt per head may be over 90 gallons per day. The water passes through both sand and pressure filters.

“ There are only two factories, viz., Airthrey Paper Mills and Messrs. Pullar's works.

“ The analytical report on the sewage of Bridge of Allan says that it is a 'very weak sewage,' which can be understood when one considers how very liberally water is being used per head per day.

“ The sewage is untreated, and is discharged raw into the tidal waters of the Allan, a short distance above its confluence with the River Forth.

“ A sample taken from the Allan fifty yards above the sewage outfall shows the water there to be almost in the 'very clean' class.

“ Another sample was taken from the Allan one hundred yards below the sewage outfall. The water has been seriously affected by the addition of the sewage, the dissolved oxygen taken up in five days being practically at the 'limiting figure' (0.4 part per 100,000), at which point it is on the verge of causing nuisance, according to the Royal Commission on Sewage Disposal. The water at that point is within a very little of being in the category 'doubtful.'

“ A sample taken from the lade carrying the effluent from Airthrey Paper Mills before discharging into the River Allan shows that the effluent has very little, if any, effect on the water.

“ A sample taken from the lade carrying the trade effluent from Messrs. Pullar's works before discharging into the Allan, shows that the lade water belongs to the 'very clean' class, from which it may be inferred that the effluent can hardly be considered deleterious.

NON-SPECIAL DRAINAGE DISTRICTS.

“ Letham, Dunmore, South Alloa, Fallin, and Gargunnoch. — The village of Letham is comparatively recent, having been built by Carron Company for their workers in Letham Colliery. The colliery has for some years been standing idle, but the houses are fully occupied.

“ The village consists of 135 houses, with a population of 776. All the houses are provided with water-closet accommodation, and the sewage is treated in septic tanks, the effluent from which is discharged into the Pow Burn, which as a rule has a considerable flow of water. In 1933 a complaint was received of pollution. It will be remembered that that year had almost a record dry summer.

“ Dunmore Village houses are of stone, and comparatively modern in design. They are built on three sides of an oblong, the old village pump still standing in the middle of the village central green; and the open side of the oblong being towards the Forth.

“ There are twenty-eight houses with 99 of a population.

“ Seventeen of the houses have water-closet accommodation. Thirteen of these 17 houses drain to septic tanks, the effluent from which discharges into the River Forth or mouth of the Old Harbour. The sewage from the other four water-closeted houses drains direct to the Forth.

“ Within the past two years modern sanitation has been provided for 8 dwelling-houses, and in all cases septic tank treatment for the house drainage was obtained.

“ The Sanitary Inspector has recently met the factor for the owner of six houses, concerning desirable sanitary improvements. In all probability these six houses will in the near future be provided with water-closets and with septic tank treatment of the house drainage, thus leaving only five houses in the village with dry closet accommodation.

“ The Village of South Alloa is situated on the south bank of the Forth opposite the Burgh of Alloa on the north side.

“ Timber (largely pit props) is conveyed there from Baltic ports.

“ The village consists of 46 houses, with 178 of a population. All but two of the houses are served with water-closets.

“ The sewage from 37 houses is passed through septic tanks, of which there are three, one for 5 houses, another for 31, and the third for one house.

“ Several years ago a serious complaint was made from the Forth Conservancy Board as to the dumping of refuse on the foreshore.

“ The London, Midland and Scottish Railway Company

thereafter had septic tanks installed so as to treat the sewage before discharging the effluent into the tidal waters of the Forth.

“ There is also now a regular removal of refuse from the houses owned by the London, Midland and Scottish Railway Company.

“ While there was formerly reasonable ground of complaint, that has now been largely eliminated.

“ **Fallin** is a mining village situated fully three miles east of Stirling. It consists of 258 houses, with 1430 of a population.

“ The village consists of two portions, namely, the original two-storeyed brick rows, and fifty-two modern houses of the cottage type erected by the Local Authority at Woodside Crescent. The village is wholly supplied with water-closets.

“ The drainage from the original part is to a septic tank on the banks of the Forth, the effluent discharging into the river. The analysis of this effluent is fairly satisfactory as a septic tank effluent, but the untreated sewage, which comes from the 52 County Council houses, and which is discharged direct into the Forth, is very strong. The quantity, however, is so relatively small and the dilution so great that there have been no complaints of nuisance.

“ **Special Drainage District of Gargunnoch.**—The village is very old, and is situated about six miles west of Stirling, mostly on a rising ground a short distance south of the road to Dumbarton.

“ It consists of 74 houses, with a population of 190. From the adjacent hills there has been for years an excellent gravitation water supply, installed through the efforts of the Rev. Dr. Stevenson, the former Minister of the Parish.

“ There is no proper drainage scheme, and the great majority (namely, 55) of the houses have dry closet accommodation. The remaining 19 have water-closets with septic tanks, the effluents from some of which are led to agricultural tile drains, the effluents from the others discharging at various points into the Gargunnoch Burn. No nuisance has arisen.

TRADE EFFLUENTS.

“ (1) **Plean Colliery** has attached to it important chemical apparatus for the recovery of valuable bye-products from the coal. A good deal of coal-washing is done.

“ The effluent from the coal-washer and chemical works is taken partly to a settling pond at the top of the pit refuse bing and partly to a pond at Blackcraig Old Quarry. The

solid matters from the purification works are used for the colliery boiler fires.

“ The effluent, which is very clear, is discharged into the Plean Burn, a tributary of the Pow Burn, which again is a tributary of the Forth.

“ (2) **Effluent from the Bannockburn Colliery**, which is situated in Cowie.

“ Coal washing is done here, and the purification works consist of a Simon Carves (Manchester) Plant.

“ The effluent from the washer is discharged into a disused quarry from which the water percolates into the ground. The solids are burned in the boiler fires.

“ The water pumped from the pit is discharged into the sewer, and the combined contents taken to the Forth near the Railway Bridge over the Forth to Alloa.

“ A sample of sewage taken from the outfall pipe is described by the Analysts as being ‘weak,’ as might be expected.

“ **Effluent from Carnock Colliery**, or rather from the Coke Ovens.

“ Pollution might arise from the cooling of the coke, from gases and from condensers.

“ The waste water contains a small quantity of grit from the coke and occasionally a small quantity of oil.

“ Two tanks have been installed to recover the oil, which is sold as a bye-product.

“ The effluent, which is discharged into the Pow Burn, a tributary of the Forth, was not found to contain cyanides or thiocyanates, but it did contain carbolic or cresylic acids, which are fish poisons.

“ There have never been any complaints either of pollution or fish poisoning, from which it may be inferred the effluent is so diluted by the waters of the Pow as to render the acids innocuous to trout.

“ **Effluent from Fallin Colliery.**—The coal-washer here consists of the Campbell-Binnie plant. The effluent from the washer is dredged by chain buckets, by means of which most of the coal silt is extracted and the water is again used for further coal washing.

“ A settling pond is being constructed to deal with the drippings from waggons and from washer hoppers.

“ **Effluent from Millhall Colliery.**—Coal washing is done here on an extensive scale. There are really five settling ponds for dealing with the effluent from the coal washer. The original three of these are on the top of the refuse bing, up to

which the whole of the effluent used to be pumped. Occasionally too long a period elapsed before emptying the solids from these three ponds, with the result that they failed to function properly. Recently two new settling ponds were constructed by the side of the bing, and it is hoped that by proper attention all cause of complaint will be obviated. It is all a question of proper attention.

“Manor Powis Colliery Effluent.—This colliery is situated fully a mile east of Causewayhead on the Alloa Road. Here coal-washing is done on an extensive scale, and for many years a Simon Carves (Manchester) plant has been installed to purify the effluent, the resultant water being used over and over again for washing more coal. The solids extracted are burned in the boiler fires. The drippings from the waggons go direct to the Forth, but as the drippings contain much silt, they are to be passed through a new settling pond which is to be constructed.

“The water pumped from the pit is passed direct to the Forth.

“Effluent from the Carpet Manufacturing Works at Forthbank.—The possible pollution is from the waste waters from the washing of the yarn, and the removal of the excess colour from the same. It is calculated that the waste waters amount to 20,000 gallons per day, and it is discharged direct to the Forth.

“It is noted that the waste waters were slightly acid in reaction, but the dilution is so enormous that no harm appears to have been caused. It is safer, however, to have such waste waters alkaline.

“The effluents from the Bacon Curing Factory, Abbey Craig Laundry, Airthrey Paper Mills, and Messrs. Pullar's Works have already been considered.

“It may be added that no esparto grass is used at Airthrey Paper Mills, the raw materials being old sacks, newspapers, cardboard, flock dustings and sulphite pulp. The chemicals in use are:—Soda ash (small amount), china clay, aniline dyes, and bleaching powder in small amount. No Fullner tank is installed, the waste waters, amounting to about 500 gallons per day, being allowed to settle in a tank 9ft. 6in. in diameter and 4ft. 6in. deep, the silt from which is spread on adjacent ground, and the supernatant fluid led into the sewers.”

III.—HOUSING.

PROVISION OF HOUSES BY LOCAL AUTHORITY.

At the end of the year 1935 the number of houses erected or contracted for by the County Council was 3282, of which 1235 were intended to rehouse persons displaced under the slum clearance sections of the Housing Act of 1930.

Under the Act of 1935, as mentioned in my last Annual Report, a full census and survey of all houses in the County up to £45 rental was carried out. The total number of houses inspected was 18,779, and for reference I repeat here the condensed abstract of the figures obtained:—

	1 Apt.	2 Apts.	3 Apts.	4 Apts.	More than 4 Apts.	Total.
Nnumber of (a) Houses inspected .	1090	7231	5699	2288	2471	18,779
(b) Overcrowded Houses ...	239	2698	1186	160	20	4303
(c) Houses unfit for habitation (not included in (b) ..	590	1231	220	77	25	2143
Of which already being dealt with but still occupied	288	397	61	16	3	765
Leaving still to be considered	302	834	159	61	22	1378

After considering the facts very carefully the Housing Committee, as noted in my last Report, agreed to the erection of 2130 houses, of which 1075 would be under the overcrowding provisions of the 1935 Act and 1055 under the scheme of rehousing of persons displaced from condemned houses. The following is a statement showing position of schemes as at the beginning of March of the present year (1937):—

Total Number of Houses to be erected—2130.

Site.	No. of Houses to be erected.	Under construction or contracted for.	Balance to be dealt with.
Cowie	108	70	38
Whins of Milton	20	12	8
Carron	80	66	14
Plean	48	—	48
Bannockburn	142	100	42
Larbert	66	10	56
Kilsyth (East and West)	48	—	48
Bonnybridge	106	76	30
Castlecary	20	—	20
Falkirk Parish	34	—	34
Avonbridge	62	24	38
Whitecross	34	—	34
Shieldhill	44	—	44
Airth	54	54	—
Fallin	68	68	—
Causewayhead	22	—	22
Gargunnock	10	—	10
Buchlyvie	4	—	4
Balfron	26	26	—
Buchanan	12	—	12
Strathblane	22	—	22
Baldernock	8	—	8
Milton of Campsie	32	—	32
Lennoxtown	76	76	—
Cambusbarron	34	24	10
Dunipace	14	—	14
Bothkennar	22	—	22
Westquarter	242	242	—
Laurieston	28	28	—
Glen Village	18	—	18
Kippen	8	7	1
Drymen	20	—	20
Fintry	20	—	20
Strathblane	12	—	12
Torrance	22	22	—
Stenhousemuir	72	72	—
Killearn	10	8	2
Slamannan	142	—	142
Carronshore	86	14	72
South Alloa	2	—	2
Denny Parish	86	50	36
California and Blackbraes	40	20	20
Letham	18	—	18
Maddiston	88	—	88
	<hr/> 2130	<hr/> 1069	<hr/> 1061

From the foregoing it will be seen that of the 2130 houses contemplated 1069 are already under construction or have been contracted for, leaving a balance of 1061 houses to be dealt with. When all these houses have been completed—possibly in two years or so, it will bring the number of houses provided

by the County Council up to a grand total of 5412—more than one quarter of the total houses in the area. At the end of 1936, however, the actual number of houses already built or under construction by the County Council was 4238.

Housing of Rural Workers' Act.—At the end of 1934 no less than 1058 houses had been reconditioned with the help of subsidy given under the provisions of this Act. In 1935, other 192 houses were reconditioned, and in 1936, 84, giving a total as at the end of 1936, of 1334 old houses which have been repaired and modernised, and many of which could not have been so dealt with without the help afforded under the Act.

Plans for New Buildings, Improvements, Etc.—During the year 1936, the number of plans submitted to the Committee was 283. Of these 90 were for the erection of new houses, numbering in all 562. One hundred and twenty-six were of three apartments, 331 of four apartments, and 105 of more than four apartments. Nineteen of the sets of plans for new houses were for the County Council, embracing 421 dwellings, of which 72 were of three apartments, 266 of four apartments, and 83 of more than four apartments.

In addition to plans for new houses, 164 were for alterations and additions to existing dwellings, and in 81 cases application was made for subsidy under the Housing (Rural Workers) Act.

Amongst other plans included in the 283, were three for garages, 4 for byres, 3 for piggeries, 3 for public lavatories, and a Miners' Welfare Hut.

Formal Report to the Department of Health for the year ended 31st December, 1936, on proceedings taken with regard to the Inspection, Improvement and Demolition and Closure of Dwelling-houses.

Housing (Inspection of District) Regulations (Scotland), 1928.

1. Number of dwelling-houses inspected:—

(a) during year	1248
(b) since 1st January, 1931	19570

2. Number of dwelling-houses which, on inspection, were considered to be in any respect unfit for human habitation:—

(a) during year	451
(b) since 1st January, 1931	3169

Housing (Scotland) Act, 1925.

3. Number of houses in respect of which intimations were given during year under Section 20 (1) requiring provision of a sufficient water-closet	135
4. Number of houses where requirements were complied with by owners during year—	
(i) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	25
(ii) without such assistance	40
5. Number of houses where works were carried out by County Council during year after failure of owners to do so	—
6. Number of houses for which water-closets were provided during year at instance of County Council without formal intimation under Section 20 (1)—	
(i) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	30
(ii) without such assistance	24
7. Number of houses of (a) one apartment, and (b) two apartments, for the erection of which the consent of County Council was given during the year in terms of Section One Hundred and Eleven	(a) 0 (b) 0

Housing, Town Planning, etc. (Scotland) Act, 1919.

8. Number of houses in respect of which notice was given during year under Section 40 (1) requiring provision of a water supply (a) (a) inside the house, and (b) outside the house	(a) 66 (b) —
9. Number of houses where requirements were complied with by owners during year—	
(i) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	27
(ii) without such assistance	14
10. Number of houses where works were carried out by County Council during year after failure of owners to do so	—

11. Number of houses where water supply was provided during year at the instance of County Council without formal notice under Section 40 (1)—	
(i) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	25
(ii) without such assistance	15

Housing (Scotland) Act, 1930.

12. Number of dwelling-houses in respect of which notices were served during year under Section 14 (1)	—
13. Number of dwelling-houses rendered fit for human habitation during year following on notices under Section 14 (1)	—
(a) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	—
(b) without such assistance	—
14. Number of dwelling-houses in respect of which work has been done during year by County Council under Section 15 (1)	—
15. Number of dwelling-houses in respect of which in terms of Section 17 a demolition order or closing order under Section 16 (3) has been substituted during year for a notice under Section 14 (1)	—
16. Number of dwelling-houses in respect of which notices were served during year in terms of Section 16 (1)	679
17. Number of dwelling-houses in respect of which, following on notice under Section 16 (1):—	
(a) undertaking has been given during year that house will not be used for human habitation until it has been rendered so fit	93
(b) undertaking has been given during year that house will be rendered fit	—
(c) demolition orders have been made during year under Section 1 (3)	127
18. Number of dwelling-houses rendered fit during year following on Demolition Orders	5

(1) with assistance under Rural Workers Acts	4
(2) without such assistance	1
19. Number of dwelling-houses rendered fit during year following on undertaking under Section 16 (2)—	6
(i) with assistance under Housing Rural Workers) Acts, 1926 and 1931	3
(ii) without such assistance	3
20. Number of dwelling-houses rendered fit for human habitation during year at instance of County Council without formal notice under Housing (Scotland) Act, 1930:—	
(i) with assistance under Housing (Rural Workers) Acts, 1926 and 1931	—
(ii) without such assistance	—
21. Number of dwelling-houses in respect of which Demolition Orders have in terms of Section 16 (3), been determined by County Council during year following upon houses having been rendered fit for human habitation	3
22. Number of houses in respect of which advances have been made during year in terms of Section 34 towards cost of repairs and amount so advanced	6—£350

SEASONAL WORKERS' ACCOMMODATION.

Mr. Sinclair, Sanitary Inspector, writes:—

“ Frequent inspections were made during the occupancy of the huts at Arnprior and Buchlyvie, and it was found these places were generally well kept.

“ A contravention of the Bye-laws was noted in respect that two small huts had been erected and were occupied by workers without intimation being given to the Local Authority. Overcrowding existed, and there was no lavatory accommodation. The Dealer was summoned to appear before the Committee, when he explained that he was not aware that the Bye-laws applied where only a small number of workers were concerned. The huts are not now being used for this purpose.

“ In most parts of the Area local labour is employed, and it is therefore unnecessary to house the workers at the farms.”

Mr. Ferguson reports that—

“ During the potato digging season two notices were received from farmers in the South Central Area that seasonal workers were to be employed.

“ At Milnquarter, Gallamuir Farm, Plean, unoccupied ploughmen's houses were made suitable for the accommodation of potato diggers. The premises were occupied for three weeks by twenty-three workers, and the Bye-laws were complied with in all respects.

“ At Carbrook Mains Farm, Larbert, it was found that the premises in which it was proposed to house the potato diggers were unsuitable for the purpose. Three marquees were therefore erected in a field adjoining, two were used as sleeping quarters, one for the males and one for the females, and the third was used as a dining hall. Twenty-five workers were accommodated in the marquees for one week.”

Mr. Stewart, Sanitary Inspector in the Western Area, reports:—

“ Motor transport is having its effect on the housing of seasonal workers, many employers of labour finding that, all things considered, it is better to have a central housing locus and transport the workers night and morning to the scene of their labours. There are still, however, employers who have recognised farmers who take the trouble to put steadings at the disposal of these workers. Eight notices were received from employers and farmers for the purpose of housing potato diggers. The length of time at any one farm is usually short, and on the whole little difficulty is experienced in keeping the premises in a fair measure of cleanliness. The places occupied were situated in Campsie 2, Drymen 3, Killearn 1. Fourteen inspections were carried out while workers were there.”

TENTS, VANS AND SHEDS BYE-LAWS.

Mr. Sinclair reports:—

“ Inspections were made of these from time to time as occasion demanded. As a rule it is caravans that have to be dealt with, and generally there is no difficulty in getting them to remove after a few days' stay in a place. Occasionally one meets with the type of people who wish to settle down in a caravan near to or even within a village, and these are found to be the most troublesome to deal with. One such case occurred at Whins of Milton, and in this instance the caravan was grossly overcrowded and other conditions generally unsatisfactory. It was not until legal proceedings were

commenced that the caravan dwellers were persuaded to remove, and I understand they obtained housing accommodation in another district."

For the Southern part of the Central Area Mr. Ferguson reports:—

"In connection with the new reservoir which is presently in course of construction in the Carron Valley the contractors for the works established two camps for their workmen, one of which is situated at Craigannet, and the other at Smallburn. At each camp the workmen are accommodated in wooden huts which are used as sleeping dormitories, and in addition there is a dining hall with a hot plate and utensils for cooking, also sheds for ablution purposes and for the drying and washing of clothes and latrine accommodation. The average daily number of men in residence throughout the year in each camp was as follows: — Craigannet, 76 men; Smallburn, 47 men.

"The camps are well conducted, and gave no cause for complaint.

"The owner of a field in the Drove Loan at Head of Muir, Denny, let out his field as a camping ground during the summer months, and this was frequented by travelling hawkers who paid a nightly or weekly rental for the privilege of camping there, and as many as 60 persons accommodated in caravans and tents were living on the ground. As the field was without water supply, drainage and sanitary conveniences, numerous complaints were received from local residents regarding the nuisance being created. The Local Authority asked the owner to provide the necessary services, such as water supply, drainage and sanitary conveniences, but he failed to do so. On the failure of the owner to carry out the Local Authority's requirements, notices were served in terms of the Bye-laws on the occupiers of the tents and caravans to provide the necessary services and to abate the overcrowding which was prevalent, and this had the desired effect of removing them off the ground."

In his Annual Report on the Western District, Mr. Stewart says:—

"It is little wonder that with exhortations from those in authority to keep fit, join Physical Culture and Health and Beauty organisations, that townspeople welcome the opportunity of walking and living in the country even though it is but for a limited period of each week during the summer months. Such is the lure of the hills and dales, rivers and lochs to those whose working lives are spent in stuffy offices, warehouses and factories that efforts are made to breathe in the purer atmosphere of the country as long as possible.

" The establishment of recognised camps under proper control is quite a common practice in West Stirlingshire. There is one near Millarochy Bay, Loch Lomond, where there has been well over one hundred tents and caravans assembled at a time. On Inchcailloch Island there is another ' all under canvas ' camp which is under the control of the Glasgow University Branch of International Student Service, and affords a temporary change of life for unemployed men and students. There is also the Scout Camp at Auchengillan. Each of these three camps is well conducted by responsible persons.

" The practice of giving off sites for permanent erections such as huts is gradually spreading, and at present there will be in the vicinity of one hundred and fifty such huts. These are widely scattered over the whole of the Western Area, although about one hundred are situated on estates adjoining the Stockiemuir Road. Rigid rules are enforced by the proprietors, and little or no trouble is experienced. In addition there are scores of one-night campers who pitch their tents wherever they may be on a Saturday night, and are off again the next morning or evening. There is no official knowledge of these, and many are only seen by chance visitations.

" There were three hundred and nine inspections made during the camping season, and, where necessary, verbal intimation given to the hut, tent or van occupier to pay more regard to the latrine, refuse or liquid waste disposal. No serious nuisance was found, nor were any complaints received."

IV.—FOOD SUPPLY.

DAIRIES.

Towards the end of the year I submitted the following report, which shows the present position with regard to registration of Dairy Farms:—

“ Now that the Dairy Bye-laws have, it is to be hoped, been finally stabilised, it appears an opportune time to place before the Committee the present position regarding the Dairy Farms in the County (landward)

“ When I entered upon my duties as County Medical Officer in May, 1912, there were three District Committees, namely, Western, Central, and Eastern, each being within its own area the Local Authority under the Public Health (Scotland) Act, 1897. Each of these three Local Authorities formulated its own Dairy Bye-laws, which were thereafter separately approved by the Local Government Board.

“ The standard of the Bye-laws varied, that for the Western District being considerably lower than for the other two with regard to cubic air space and floor area per cow.

“ In 1914 the Milk and Dairies (Scotland) Act was passed, but owing to the Great War the Government decreed that the Act should remain inoperative until an ‘ Appointed Day.’ That took place in 1922.

“ Thereafter the three District Committees, each for its own area, proceeded to make Dairy Bye-laws. While these showed an advance on the original bye-laws, the Western District standard still continued lower than that for the other two Districts.

“ The negotiations with the Local Government Board were very protracted, and years passed before the Bye-laws were finally approved and printed. It was 1928 before the Western and Central Bye-laws were completed and approved, and they were issued to the dairy farmers in 1929.

“ In the Eastern District they were even later, namely the beginning of 1930. By that time the Local Government (Scotland) Act, 1929, had been passed, by which District Committees were abolished and the County made the unit for Local Government purposes including Public Health.

“ Almost before these Bye-laws therefore could come into operation the 1929 Act made it necessary inter alia for the new County Health Authority to formulate another set of Dairy Bye-laws, uniform for the whole County, and on a considerably higher standard than previously. It will be understood

therefore that the operation of the new and uniform Bye-laws is likely to bear more heavily on the owners of dairies in the Western than in the Central and Eastern Districts.

“ The negotiations with the Department of Health over the draft new Bye-laws were so protracted as to standards, legal powers, etc., that the draft Bye-laws were not finally adjusted and approved till March, 1935. It was September before they were actually printed and issued to the dairy farmers, so that the necessary alterations and improvements had to be deferred until the cows were sent out to grass at the beginning of the present summer.

“ It will be understood therefore that until last year the Dairy Bye-laws continued to be in a very unsettled condition, and it is practically only this summer that the Staff have been in a position to tackle the Dairy problem on a sure and fixed basis.

“ In the circumstances it was considered the best policy to grant to practically all the Dairy Farms ‘ provisional registration ’ until it was determined what, if anything, would require to be done to make them conform to the Standard of the Bye-laws formulated under the 1929 Act. What that involves varies widely, some dairies requiring very little and others a great deal. As I have already indicated, the operation of the Bye-laws is likely to cause most trouble in the Western District which is, of course, a large and important dairying centre.

“ Before taking action the Staff had to make a survey to ascertain how far the dairies fall short of the new requirements. The owners and farmers had then to be communicated with, resulting in interviews and further correspondence. As a rule the people have viewed the proposals reasonably, but several have expressed annoyance that having comparatively recently done certain necessary improvements under the old Bye-laws they should again be called upon for further requirements owing to the higher standards of the new.

“ Again, in the case of some large estates, the Staff have considered it expedient to get the owners to tackle the work in parts,—so many farms each year.

“ Considerable progress was made during the past summer, and it may be anticipated that the machinery which has now been set definitely in motion will be able to proceed at an accelerated pace next year.

“ It will, of course, take some time to get all the dairies in the County up to the standard now required. In the meantime, however, it is to be recognised that the term, ‘ Provisional Registration ’ in the vast majority of the cases does not imply a low standard.

“ As has been indicated, most of the owners will be

willing to comply with the requirements, others will probably be more tardy, while a small residue may ultimately have to be treated somewhat drastically.

" The present position may be stated shortly thus. There are at present 437 dairies on the County Local Authority registers. Of these 51 are fully registered, and it is anticipated that, when the question of the Registration of Dairies comes up for consideration by the Local Authority at the end of the present year, a further 106 dairies will be in a position to be fully registered, leaving 280 still requiring more or less attention before receiving full registration.

" In addition to the aforementioned 437 dairies, there are approximately 165 small dairies which the Act specifically excepts from Registration, as they keep only one or two cows and supply a few neighbours."

MILK (SPECIAL DESIGNATIONS) ORDER, 1936.

A list of the Dairies licensed under the above Order as at the end of the year 1936 is given in full in the County Veterinary Inspector's report, which is reprinted at the end of this Section. The total number so licensed was 36, of which 8 were under the designation " Certified," 26 " Tuberculin Tested," and two " Standard." As a general rule the milk from these farms was found on bacteriological examination to be excellent and well up to the standards laid down by the Order, as will be seen from the appended table:—

Designation.	No. of Farms.	No. of Samples.	No. of Farms where the Bacterial Count was—			No. of Farms, the milk from which showed evidence of Coliform Bacilli.	
			Consistently according to standard	Not up to Standard on one occasion	on two occasions.	on one occasion.	on two occasions.
Certified	8	20	6	2	..	3	1
Tuberculin Tested	25	50	24	1	..	6	1
Standard	2	3	2	..	..	1	..

Only on two occasions was the bacterial standard of 30,000 per c.c. " Certified " milk exceeded, and for the tuberculin tested class only one sample exceeded the count of 200,000. Some evidence of Coliform Bacilli was found in 14 samples, indicating possibly some slackness in grooming the cows, and on each of these occasions the attention of the farmer was called to the matter.

SUPPLY OF MILK TO SCHOOL CHILDREN.

As mentioned in my last Annual Report a scheme was commenced in 1936 for supplying children in all the Schools in the County with a glass of milk per day. This scheme has continued to be popular, and without doubt has been of great benefit to the health of the school children.

From time to time samples of the milk supplied to the Schools were taken for chemical and bacteriological examination, the total number of samples examined being 227, and with only a very few exceptions the milk was fully up to the standard required.

For the great majority of the Schools it has been possible to procure milk from tuberculin-tested herds, a small number being supplied with pasteurised milk, while one or two received ordinary milk. The proportion supplied with T.T. milk, however, is very high as compared with England where, in 1935, only 2.8 per cent. of the children received milk from tuberculin tested cows; and even as compared with Scotland as a whole where the proportion of school children that year who received milk from tuberculin tested cows was 45.8 per cent.

SLAUGHTER-HOUSES.

There is one slaughter-house less, the number of private slaughter-houses in the County now being 29. From time to time visits were made by the Sanitary Inspectors, and from their reports it would appear that as a rule such premises are well conducted.

MEAT INSPECTION.

The Sanitary Inspectors are appointed as Detention Officers for this purpose, and acting as such they condemned and with the owner's consent caused to be destroyed a considerable quantity of meat which was unfit for human consumption. The quality of cattle killed, however, was good on the whole.

FOOD AND DRUGS ACTS.

In all, 274 samples were taken for chemical examination throughout the year, as shown in Table VI. Of these, 96 were taken formally, in accordance with the statutory rules, while 178 were taken informally as test samples. In the event of any of the latter proving non-genuine, then of course formal samples would forthwith be taken. Among the formal samples taken eleven were found not genuine. In four of

these warnings were given, while in three an " appeal to the cow " was made with satisfactory results. In the other four legal proceedings were taken. Three of these referred to samples of milk from the same source, and in this case the dairyman was fined £2. The other prosecution referred to a sample of whisky—the vendor being fined £4.

ANNUAL REPORT BY THE COUNTY VETERINARY INSPECTOR FOR THE YEAR 1936.

In compliance with the instructions contained in Circular No. 2 (Health Services) of the Department of Health for Scotland, dated 29th December, 1936, I have the honour to submit the Report on the veterinary inspection of the cattle in the dairy herds of the County of Stirling for the year ended 31st December, 1936.

The area to which this Report refers consists of the County of Stirling, and the Burghs of Bridge of Allan, Denny and Dunipace, Grangemouth, and Kilsyth.

Where possible, throughout the Report, the corresponding figures for the previous year, 1935, are given in parentheses after those for 1936.

General Review.

On the 1st October the Milk (Special Designations) Order (Scotland), 1936, came into operation, and the more important changes made were (1) in the nomenclature of the new designations, "Grade A" being replaced by "Standard"; and (2) the power to charge fees for the issue of licences being omitted. As this Local Authority had issued only two "Grade A" licences and restricted its charge for a licence to five shillings the introduction of the new Order did not cause any disturbance.

During the year under review the statutory inspection of all cows in registered dairy herds in the County and Burghs was carried out and no administrative difficulties were encountered.

The post of Assistant Veterinary Inspector, vacant during the last quarter of 1935, was filled by the appointment of Mr. Samuel Jamieson, M.R.C.V.S., D.V.S.M., and he took up duty on the 2nd January, 1936.

Clean Milk Tests.

The Monthly Clean Milk Tests, which were inaugurated by the Local Authority in 1929 in conjunction with the West of Scotland College of Agriculture, were continued during 1936.

Thirty-one (thirty-three) farmers drawn from all over the County participated in the tests, and their herds, byres, and methods of production were fully representative of the dairy-ing industry of the County.

A total number of 331 (358) samples were submitted for examination to the Agricultural College. One hundred and sixty-eight (165) fulfilled the conditions of cleanliness and butter fat content of Certified Milk (not more than 30,000 bacteria present in 1 millilitre of milk, absence of coliform bacteria in 1/10 millilitre, and not less than 3.5 per cent. butter fat); 90 (54) fulfilled the conditions of cleanliness and

butter fat content of Tuberculin Tested Milk (not more than 200,000 bacteria per millilitre, absence of coliform bacteria in 1/100 millilitre of milk, and presence of not less than 3.5 per cent. butter fat); 34 (56) fulfilled the conditions of cleanliness of Tuberculin Tested Milk, but failed to reach the standard of 3.5 per cent. butter fat. In other words, 88 (77) per cent. of the samples submitted satisfied the conditions of cleanliness applicable to Designated Milk.

Further analysis of the figures shows that in 34 (46) samples the bacterial count exceeded 200,000 organisms per millilitre and 46 (67) failed to pass the coliform test in 1/100 millilitre of the sample.

Regarding the butter fat content of these milk samples, 271 (278) contained above 3.5 per cent. butter fat, and 50 (69) were below 3.5 per cent. butter fat, but above the presumptive legal standard of 3 per cent., and 10 (11) fell below the presumptive legal standard.

Section I.

Condition and Cleanliness of Cattle.

(a) No instances were observed during the year in which the quality of milk was adversely affected by the nature of the fodder or diet.

(b) 1,558 (1,651) cows were found with abnormal udders.

Thirty-seven (40) of these exhibited symptoms that were suggestive of tuberculosis of the udder, and a bacteriological examination of the milk was carried out which proved positive for tubercle bacilli in 28 (29) cases. These animals were immediately slaughtered under the Tuberculosis Order of 1925, and compensation, as laid down in the Order, paid to their owners.

Three hundred and twenty-two (313) cows were found suffering from acute mastitis in one or more quarters of the udder.

One thousand and forty (1,217) cases of atrophy of the udder were noticed, probably the result of previous attacks of mastitis, but, as the affected quarters were functionless, there was no danger to the milk of the remaining quarters.

Induration of a non-tuberculous character, generally the result of traumatism, was observed in 159 (81) cows.

(c) In no instance was the milk from the affected animals being used for human consumption. Owners of affected animals were instructed in the proper disposal of the infected milk, and the steps to be taken for the prevention of the spreading of this condition to other cows. Occasion was also taken to point out the danger that followed the practice of feeding to calves the milk of cows with abnormal udders.

Section II.

Inspection of Cattle.

(a) In the County there were 480 (440) registered dairies, containing 8,740 (8,590) cows, and the regular inspection of the cattle in these herds was carried out thrice during the year.

One thousand four hundred and seventy-six (1,479) visits of inspection were made to the registered dairies, and 27,569 (27,899) examinations were made.

(b) In addition, there were within the County 151 (165) premises, containing 539 (550) cows, which were not registered dairies, but from which milk was sold in small quantities.

Two hundred and sixty-nine (230) visits of inspection were made to these premises, and 1,164 (1,116) examinations were made.

Section III.

Bovine Tuberculosis.

During dairy herd inspection, and particularly when dealing with cases under the Tuberculosis Order of 1925, the opportunity was always taken to interest owners in the question of eliminating bovine tuberculosis from their herds, and the method by which this result could be most easily achieved was demonstrated on the farm. Great stress has always been paid to the educational aspect of this branch of our work, and that our efforts have met with a measure of success is shown by the increase in the number of herds which are now tubercle-free.

(a) Among the dairy cows in the County there occurred 141 (107) cases of tuberculosis which were of such a nature as to bring them within the provisions of the Tuberculosis Order. In addition to the 28 (29) cases of udder tuberculosis mentioned above there were 34 (14) cases of tuberculous emaciation, and 79 (64) cases of chronic cough showing definite clinical signs of tuberculosis.

(b) The tuberculin test was applied to 4,560 (3,681) animals in accordance with the provisions of the Milk (Special Designations) Order (Scotland), and 349 (688) were found to react positively. Of the 4,016 of these animals which were in herds previously licensed under the Order 110 reacted to the test, while of the 544 animals which were tested in herds making their initial application for a licence 239 failed to pass.

(c) The tuberculin test was not applied to any cows under section 22 of the Milk and Dairies Act, 1914.

(d) List of dairies holding licences in respect of tubercle-free herds.

CERTIFIED.

Name and Address.	Average No. of Herd.	Estimated No. of Gallons Produced per Annum.
W. Betts Donaldson, Auchineden, Blanefield	28	25,500
Andrew B. Bell, Bankell, Milngavie	28	21,900
James McCall, Blackdubs, Bridge of Allan	20	14,000
Alexander Cook & Sons, Burnhouse, Denny	28	22,500
Representatives of the late R. M. Reid, Glen, Falkirk	54	41,500
Semple & Pirie, Lennoxlea, Lennoxtown	40	30,000
Charles Ross, Rashiehill, Balfron	80	73,200
Charles Ross, Nether Glinns, Balfron		

TUBERCULIN TESTED.

Robert Hutchison, Avonbank, Polmont	30	18,950
William Semple, Ballagan, Strathblane	14	8,140
John B. Arneil, Ballewan, Blanefield	13	7,800
Norman P. Donaldson, Ballindalloch, Balfron	36	No milk sold here meantime.
Norman P. Donaldson, Keirhill, Balfron		
T. G. Wilson, Carbeth Home Farm, Balfron Station	50	40,000
Mrs C. M. A. L. Fleming, Chapelarroch, Gartmore	20	16,000
John Paterson, Claylands, Balfron	80	78,000
John Paterson, Woodend, Balfron		
William J. Thomson, Craigbrook, Blanefield	10	8,500
Donald McLean, Duntreath Dairy, Blanefield	5	3,500
Robert Findlay, Cuilt, Blanefield..	15	6,000
Mrs. Catherine B. Scott, Easter Balfunning, Balfron	26	12,800
David S. Smith, Falleninch, by Stirling	38	24,000
J. & J. McQueen, Finnich Blair, Drymen Station	18	16,500
Royal Scottish National Institution, Househill, Larbert	38	26,000

Matthew Peebles, Homesteads, Stirling	14	8,500
Montrose Estates, Limited, per J. M. Bannerman, Ibert, Buchanan	16	10,670
Mrs. Isabella Paterson, Laigh- parks, Killearn	39	24,260
James Logan, Manorneuk, Blair- logie	26	17,660
James Kerr, Middle Kerse, Kippen Station	10	4,320
James Pirie, Middleton, Milngavie	39	24,000
Andrew Chalmers, North Kerse- bonny, Stirling	16	12,500
Gavin Steel, Southfield, Slamannan	25	14,700
James Steel, Threaprig, by Falkirk	10	7,400
James Miller, Westerton, Kippen	40	22,000

(e) Four other dairies within the County are believed to have tubercle-free herds. These herds contained eighty-three cows, and produced 58,100 gallons of milk during the year 1936.

Section IV.

Miscellaneous.

Two dairy herds in the County were licensed for the production of Standard Milk during 1936.

STANDARD.

Name and Address.	Average No. of Herd.	Estimated No. of Gallons Produced per Annum.
James Alston, Ballikinrain Home Farm, Killearn	70	44,400
Sam Adam, Broadgate, Strathblane	30	24,600

(b) During the year two reports were received from the Public Health Departments of neighbouring Local Authorities that milk consigned from farms in Stirlingshire had been found to be positive for tuberculosis. In both instances the dairy cattle were immediately examined, but no clinical evidence of tuberculous mastitis was found. Group samples, followed by individual samples, were taken, and in each case the offending cow was found and slaughtered under the Tuberculosis Order of 1925.

(c) Sections 13 and 14 of the Milk and Dairies (Scotland) Act, 1914, continued to be complied with. One hundred and twenty-three (62) reports were received during the year—

113 (55) from owners and 10 (7) from veterinary practitioners on behalf of owners of cows which were suspected to be suffering from one or other scheduled forms of tuberculosis. On investigation of these cases it was found that the milk from these animals was not being sold after suspicion became attached to them.

Inspection of Higher Grade Milk Herds.

At the end of 1935 there were 5 herds licensed for the production of Certified, 17 for Grade A (Tuberculin Tested), and 2 for Grade A Milk.

During 1936 the number of Certified Herds increased to 8, and Tuberculin Tested to 26—an increase of three and nine respectively. The 2 Grade A licences in existence at the beginning of the year were continued as Standard licences when the new milk (Special Designations) Order came into force on the 1st October, 1936.

The requisite veterinary inspections and tuberculin tests were made of the cattle in the higher grade milk herds during the year, the tuberculin used being made from a synthetic medium.

Meat Inspection and Slaughterhouses.

In the Landward Area of the County 31 private slaughterhouses were licensed. In addition, the Burghs of Kilsyth, Denny, and Grangemouth have public slaughterhouses, and there is a private slaughterhouse in Bridge of Allan. A regular system of veterinary inspection of all these premises has been carried out, and 1,206 (1,186) visits were paid during the year.

Pigs.

Since the inception of the Pigs and Bacon Marketing Schemes the number of pigs killed in the local Bacon Factories has greatly increased, and this has resulted in a large addition to the work of veterinary inspection. All the pigs killed in the Bacon Factories were stunned by electricity before being bled, and this method has proved a great improvement on that previously employed.

The carcases of pork and hams imported from abroad were also examined, as well as the products which were dealt with in the cooked foods and canning branches of the Factories.

(1) HOME-KILLED. — 18,833 (13,831) home-killed pigs were examined, and, on account of tuberculosis or other causes, 34 (17) pigs were totally condemned and 1,872 (1,676) were partially condemned.

(2) IMPORTED.—There were imported into the County throughout the year, for processing in the various Bacon

Curing Factories, the carcasses of 41,000 pigs and 35,000 hams, and during our visits of inspection the opportunity of examining these products was always taken.

Portions of twelve sides of bacon, weighing 180lb., were condemned on account of blemishes, and five legs of bacon, weighing 96lb., were condemned on account of fracture of bone and consequent extravasation of blood into the surrounding tissues.

Thirteen tins of Preserved Meat, weighing 89lb., were condemned on account of decomposition.

Cows, Heifers, Bullocks, Bulls, Sheep and Calves.

During 1936 the veterinary staff examined 213 (213) cows, 159 (120) heifers, 735 (673) bullocks, 15 (13) bulls, 1,623 (1,293) sheep, and 33 (40) calves in the slaughter-houses of the County.

Sixty (35) cows, 6 (3) heifers, 10 (10) bullocks, 1 (4) sheep, and 2 (2) calves were totally condemned, and 73 (92) cows, 31 (14) heifers, 141 (150) bullocks, 10 (8) bulls, and 33 (45) sheep were partially condemned on account of tuberculosis or other causes.

Acknowledgment.

In conclusion, I wish to record my appreciation of the loyal co-operation and willing assistance rendered by the members of my staff throughout the year.

V.—MEDICAL SERVICES.

MATERNITY SERVICE AND CHILD WELFARE.

The Infantile Mortality rate for 1936 works out at 74 deaths under one year per thousand births. This is slightly higher than the rates for the previous two years, but is equal to the average of the preceding five years. As will be seen from Table VII., these infantile death-rates decreased from an average of 111 for the ten years 1891-1900 to an average of 74 for the ten years 1921-1930, at which level they have since practically continued. Similarly the average birth-rate (for the decade 1891-1900) fell from 34.4 per 1000 of population to 22.3 for the decade 1921-30. Since then the decrease has continued so that the average for the five years 1931-35 was only 18.9, and for 1936 the rate was 18.7.

TABLE VII.—Births, Birth-Rates and Deaths under One Year of Age per 1000 Births in the County of Stirling, from 1891 Onwards.

Year	No. of Births	Birth-rate	Deaths under 1 Year	Deaths under 1 Year per 1000 Births
1891 to 1900	23,424	34.4	2601	111
1901 to 1910	23,056	31.3	2253	98
1911 to 1920	20,463	25.3	1825	89
1921 ...	2182	26.9	153	70
1922 ...	1917	23.2	178	93
1923 ...	1852	23.2	133	72
1924 ...	1853	23.6	137	75
1925 ...	1797	22.5	152	84
1926 ...	1822	22.8	127	70
1927 ...	1652	20.8	100	60
1928 ...	1704	21.7	122	71
1929 ...	1596	18.8	97	61
1930 ...	2157	19.3	173	80
1931 ...	2118	19.8	152	72
1932 ...	2160	20.0	180	83
1933 ...	1970	18.0	145	74
1934 ...	2028	18.4	143	71
1935 ...	2029	18.4	145	71
1936 ...	2066	18.7	152	74

The following data is given formally in accordance with the requirements of the Department:—

I.—Infantile Mortality.

CAUSE OF DEATH	AGE GROUPS					Total	Rate per 1000 Births
	Under 1 week	1-4 Weeks	4 Weeks to 3 Months	3-6 Months	6-12 Months		
Chickenpox ... ..	...	...	...	...	...	...	0.5
Measles ... ..	...	...	1	...	...	1	...
Scarlet fever ... ..	...	...	...	...	...	...	1.9
Whooping Cough ... ..	...	...	2	2	...	4	...
Diphtheria and Cough ... ..	...	...	...	...	...	...	0.5
Erysipelas ... ..	...	1	...	...	...	1	0.5
Tuberculous Disease ... ..	...	...	...	1	...	1	0.5
Meningitis (not tuberculous) ... ..	...	...	1	...	...	1	...
Hydrocephalus ... ..	...	...	...	...	...	...	...
Convulsions ... ..	...	...	...	2	1	3	1.5
Pneumonia (all forms) .	...	3	5	7	2	17	8.2
Bronchitis	1	...	5	2	...	8	3.8
Diarrhoea and Enteritis ... ..	...	1	4	2	3	10	4.8
Other digestive diseases ... ..	...	...	1	1	1	3	1.5
Congenital Malformations	1	...	...	...	...	1	0.5
Congenital Heart	1	...	...	1	...	2	1.0
Premature Birth	31	9	...	...	...	40	19.3
Atrophy, Debility and Marasmus	20	10	6	1	...	37	17.9
Atelectasis	1	1	...	1	...	3	1.5
Injury at Birth	1	...	...	...	...	1	0.5
Suffocation (overlying) .	1	...	1	...	...	2	1.0
Syphilis ... ..	...	...	...	...	...	...	...
All other Causes	5	4	5	1	2	17	8.2
Total	62	29	31	21	9	152	74

II.—Births.

Number Registered	2066
Legitimate, 1940; Illegitimate, 117.	
Number Notified	1869
Number Attended by a Doctor	1314
Number Attended by a Midwife	555
Number of Still-Births	83

III.—Maternal Mortality.

Number of deaths resulting from Miscarriage or Child-birth	6
Number of deaths resulting from Puerperal Sepsis...	5

IV.—Report under Midwives' Act, 1915.

(I) LIST OF CERTIFIED MIDWIVES.

- 1,722—Agnes Allison, Broomfield Cottage, Polmont.
 2,451—Helen Bryce, 26 Victoria Place, Polmont.
 995—Elsie Campbell, 34 Mary Street, Laurieston, Falkirk.
 1,842—Susan Chaliners, c/o Mrs Jas. Buchanan, 7 Kirk-
 slap, Denny.
 823—Mary Cockburn, Shieldhill, by Falkirk.
 902—Mary R. Dickie, Galaview, Plean.
 597—Agnes English, 1 Glenbank, Glen Village, by
 Falkirk.
 3,598—Elizabeth Ferguson, 63 Broad Street, Denny.
 3,017—Margaret Gibson, 24b Atholl Place, Stirling.
 12,099—Christina Hailstones, 99 4th Block, Fallin, Stirling.
 5,972—Margaret Horn, School Cottage, Greenhill.
 1,107—Sarah Hughes, 22 High Street, Kilsyth.
 5,508—Eliza M. Jamieson, Clifford Home, Bonnybridge.
 11,809—Catherine B. Johnstone, Crosslea, Lennoxton.
 3,287—Mary Kellie, 9 Muirhead Street, Kirkintilloch.
 2,333—Mary Law, Craigbank, Avonbridge.
 9,983—Euphemia N. Morrill, 26 M'Lachlan Street, Larbert.
 3,166—Margaret M'Cluskey, 45 King Street, Stirling.
 7,394—Catherine C. Macdonald, 7 Jasper Avenue,
 Laurieston.
 2,166—J. S. M'Donald, 32 Tryst Road, Stenhousemuir.
 5,425—Mary C. M'Gregor, 13 The Cottages, Fallin, Stirling.
 1,952—Mary M'Kay, 12 Gordon Terrace Carron Road,
 Falkirk.
 11,881—Christina C. M'Kinnon, Drumpark, Bridge of Allan.
 5,850—Isabella H. M'Laren, 20 Wallace Street, Grange-
 mouth.
 4,849—Isabella M'Nab, 18 Wallace Street, Grangemouth.
 7,384—Elizabeth M'Phee, Airth, by Falkirk.
 3,004—Ellen Muir, 12 Anderson Terrace, Longcroft.
 5,504—Jessie Noble, 44 Carrona Terrace, Carron.
 398—Mary Peebles, 81 Backbrae Street, Kilsyth.
 591—Christian F. Pringle, Grant Villa, Keir Street, Bridge
 of Allan.
 5,386—J. A. Rankin, South Barrwood, Kilsyth.
 10,601—Margaret M. Robertson, Crosslea, Lennoxton.
 6,791—Margaret Robson, 32 Main Street, Cambusbarron.
 2,708—Jean L. Shearer, 451 King Street, Stenhousemuir.
 2,107—Elizabeth Sommerville, 4 Woodside Crescent,
 Fallin, Stirling.
 5,250—Jane R. Stewart, Moana Mara, Kippen.
 5,509—Williamina Taylor, Clifford Home, Bonnybridge.
 1,831—Charlotte Thomson, 59 D Block, Fallin, Stirling.
 557—Helen Thomson, 183 Kilsyth Road, Banknock.

- 11,537—Margaret H. Walker, Cowie.
 8,462—Jane L. Waugh, 6 Bruce Street, Bannockburn.
 490—Isabella Wells, Milnquarter Place, Bonnybridge.
 456—Mary Wilkie, 101 Glasgow Road, Dennyloanhead.
 7,053—Margaret R. Wilson, 21 George Street, Stirling.
 7,287—Christina Wright, 65 Barlandfauld Street, Kilsyth.
 503—Jessie G. Young, Greylands, Slamannan.

(2) BIRTHS IN AREA OR DISTRICT.

Total Number of Births during 1936.....	2066
Total Number of Deaths of new-born children (within ten days) during 1936	64
Actual Number of Births attended by Midwives during 1936	555
Actual Number of Deaths of new-born children (within ten days) occurring in the practice of Midwives during 1936	18
Actual number of Cases not attended by a Doctor or Midwife during 1936—Births	1
Actual number of Cases not attended by a Doctor or Midwife during 1936—Deaths	0

(3) CASES OF OPHTHALMIA NEONATORUM.

Total Number of Cases during 1936	3
Actual Number of Cases occurring in the practice of Midwives during 1936	0
Actual Number of Cases occurring where confinement not attended by a Doctor or Midwife during 1936...	0

(4) CASES OF PUERPERAL SEPSIS.

Total Number of Cases during 1936	15
Total Number of Deaths during 1936	5
Actual Number of Cases occurring in the practice of Midwives during 1936	0
Actual Number of Deaths occurring in the practice of Midwives during 1936	0
Actual Number of Cases occurring where confinement not attended by a Doctor or Midwife during 1936—Cases	0
Actual Number of Cases occurring where confinement not attended by a Doctor or Midwife during 1936—Deaths	0

(5) CASES OF PUERPERAL PYREXIA.

Puerperal Pyrexia is defined in the Regulations of the Department of Health for Scotland as any febrile condition

(other than a condition which is required to be notified as puerperal fever under the Infectious Disease (Notification) Act, 1889) occurring in a woman within 21 days after child-birth or miscarriage in which a temperature of 100.4° Fahrenheit (38° Centigrade) or more has been sustained during a period of 24 hours or has recurred during that period.

Total Number of Cases during 1936	17
Total Number of Deaths during 1936	0
Actual Number of Cases occurring in the practice of Midwives during 1936	0
Actual Number of Deaths occurring in the practice of Midwives during 1936	0
Actual Number of Cases occurring when confinement not attended by a Doctor or Midwife during 1936—Cases	0
Actual Number of Cases occurring where confinement not attended by a Doctor or Midwife during 1936—Deaths	0

(6) CASES OF STILL-BIRTH (DEAD BORN).

Total Number of Cases during 1936	83
Actual Number of Cases occurring in the practice of Midwives during 1936	8

(7) CASES OF EMERGENCY.

The total number of Cases of Emergency in which Medical Practitioners have been called in under Section 22 of the Midwives (Scotland) Act, 1915, during 1936, distinguishing the different classes of emergency.

Delayed labour	52
Ruptured Perineum	29
Pyrexia	13
Mal-presentation	11
Post-partum haemorrhage	9
Ante-partum haemorrhage	4
Abortion	4
Premature birth	3
Still-birth	2
Retained Placenta	2
Hysteria	2
Others	15

(8) GENERAL REPORT ON THE WORKING OF THE ACTS.

The work of supervising midwives in the area has continued smoothly, and no complaints have been received.

During the year it was brought to my notice that a house in the County was being used as a Maternity Home. The person responsible for this "home" was duly visited, and the provisions of the Act were pointed out to her. Later she applied for registration, but as the place did not meet the requirements of the Act this was refused. Since the end of the year formal Notice has been served prohibiting the use of the house in question as a Maternity Home.

V.—Home Visitation.

	No. Visited	Total Visits
Infants	1758	5034
Children (1-5 years)	6152	6152
Expectant Mothers	197	302
Nursing Mothers	2789	2789

With regard to the question of infant feeding it was found that 58 per cent. of those visited during the first six months of life were breast fed, 34 per cent. were bottle fed, and 8 per cent. partly breast fed. In the case of those children visited during the second six months of life the figures had changed to 37 per cent. breast fed, 47 per cent. bottle fed, and 16 per cent. partly breast fed.

VI.—Voluntary Health Visitors' Reports.

Throughout the County there are twelve voluntary Child Welfare Centres where Clinics are held weekly or fortnightly. These Clinics are situated at Bannockburn, Blackbraes, Campsie, Carron, Cowie, Denny, Fallin, Grangemouth, Kilsyth, Muiravonside, Polmont, and Standburn. A selection of their reports are given below:—

BANNOCKBURN.—The meetings are held every Thursday afternoon from 2.30 to 4.30 p.m. Forty-six Clinics were held, the number of babies on register being 83, 54 of which were enrolled during the year. The total number of attendances was 1274.

Tea is provided for the mothers at all Clinics, and a very pleasant afternoon tea party was provided by Miss Mitchell and Miss Wilson in the Masonic Hall. After a cinematograph entertainment and musical programme, prizes were presented by Miss Wilson to mothers and babies for good attendance.

BLACKBRAES. — This Clinic meets every Thursday (fortnight) between 3 and 4 p.m. There were 23 new enrolments, and the number on the register at the end of the year was 32, and 21 meetings of the Clinic throughout the year.

On 23rd December the mothers and babies were given a Christmas party in the School, each mother receiving a cake and box of sweets, and each child a toy from the Christmas tree.

COWIE. — The meetings are held every alternate Monday afternoon, from 2 p.m. till 4 p.m. Twenty Clinics were held. Number of babies on the register 96. Fifty-two were enrolled during the year. Attendances were 567. Doctor and Nurse attend every day.

Tea is provided for mothers every Clinic day, but in addition a Christmas party was given when each child received a Christmas gift.

A summer outing is also provided for mothers. Two buses conveyed the company to Ayr, where a splendid day was spent—weather being of the best.

DENNY.—The Clinic has had a most successful year, over 70 babies being on the roll.

The average attendance at each meeting is from 23-28 each baby being weighed and carefully examined where any illness is suspected, the local doctors and district nurse being in attendance. In necessitous cases where extra nutrition is required the babies are given Emulsions, Malt and Oil, Radio Malt, and baby foods suitable. Under a special fund for social purposes the mothers were given a treat in January. After the social meeting each baby received a useful undergarment.

Again in June they had an outing to Portobello, which every one enjoyed, as it was such a pleasant day.

GRANGEMOUTH.—The Child Welfare Clinic is held in the Lesser Town Hall on Wednesdays from 3 to 4 o'clock.

Number of sessions held 80. Number of children attending:—Under one year, 116; over one year, 10—total 124.

Number of applications for milk, 53; number granted, 49—mothers 21, children 28. Amount of milk granted—5712 pints.

Abnormal Conditions noted:—Spina Bifida 1, Prematurity 1, Constipation 1, Conjunctivitis 1, Otitis Media 1, Acne 1, Ophthalmia Neonatorum 1, Ectheritis 2, Cellulitis 1, Blephoritis Marginalis 1, Bronchitis 1.

KILSYTH.—The Child Welfare Clinic at Kilsyth is held once a week on Thursday from 4 p.m. until 5 p.m. in a room of the Public Assistance building. The number of meetings during 1936 was 45.

A.—Number of Children attending	151
(1) Under one year of age	146
(2) Over one year of age	5
B.—Total Number of Attendances	1270
C.—Illnesses recorded:—	
Skin conditions	6 cases
Chest conditions	5 „
Circumcisions	5 „
Hernia	5 „
Chickenpox	6 „
Intestinal obstruction	2 „
Discharging ears	3 „
Septic cords	3 „
Gastric conditions	3 „

LARBERT AND CARRON.—As requested by Miss Ware, I have pleasure in giving you the following report in connection with the Clinic, which still continues to meet in Carronshore School on alternate Friday afternoons from 3 to 4 p.m., and the number of meetings held during 1936—24; the number of attendances, 299, and the number of new cases enrolled, 25.

The Doctor and District Nurse have also attended the Clinic, along with two ladies of the Carron District Committee, who supply the mothers with tea, and at Christmas time a special tea was provided and toys for the babies were also donated from the Committee.

MURAVONSHIDE.—A meeting is held every second Thursday in the Miners' Welfare Institute. There have been 512 attendances. Number of babies on the roll at the end of the year 50.

POLMONT.—On January 1st, 1936, 43 babies remained on the roll, and during the year 38 have joined, making a total of 81. Of these 23 are now over two years old, one has left the district, and 10 for various reasons cannot come, leaving a total of 47 on the roll. During the year 25 Clinic meetings have been held with an average attendance of 31. It is most unusual for the babies to lose weight, but when it does occur special attention is given to that baby, and before the next Clinic day Nurse calls at the house to see how the child is doing. Three of the babies have made more than a year's perfect attendance.

STANDBURN.—Since the commencement of the Clinic in 1925, 233 babies have been enrolled. There were 13 new babies this session, and at the end of the year the number on the register was 19, and the total attendances were 190. In

December the mothers and babies were given a Christmas party, which was much enjoyed. Owing to the people being removed to Westquarter, the Clinic wont open again after the holidays, as most of the mothers and babies have gone.

VII.—Ante-Natal Consultations,
and

VIII.—Post-Natal and other Consultations.

See Reports on Maternity Homes under XVI.

IX.—Child Welfare Consultations.

See No. VI.

X.—Special Treatment Centres.

(1) Teeth—

- (a) Number of attendances—(i.) Mothers, 5; (ii.) Children, 20.
- (b) Number of dentures supplied—None.
- (c) Classified summary of conditions remedied:—
(i.) Mothers—Oral sepsis, 1, Caries, 19; (ii.) Children—Caries, 0; Oral Sepsis, 0.

(2) Eyes—

- (a) Number of attendances—11.
- (b) Classified summary of conditions remedied — All Strabismus.

(3) Other ailments—

- (a) Number of attendances—None.
- (b) Classified summary of defects—

(4) Ultra-Violet Light Clinic—

- (a) Number of attendances—None.
- (b) Number of cases—
- (c) Note of conditions treated and results obtained—

XI.—Day Nurseries, Kindergartens, and Play-Centres.

None.

XII.—Food and Milk.

- (a) Number of persons in respect of whom applications were made for food or milk—(i.) Mothers, 114; (ii.) Children, 177.
- (b) Number of cases certified on medical grounds as requiring food or milk—(i.) Mothers, 92; (ii.) Children, 143.
- (c) Number of cases under (b) certified as necessitous —(i.) Mothers, 92; (ii.) Children, 143.

SUPPLY OF FOOD AND MILK.

Part I.

The conditions and arrangements for the supply of food or milk to expectant and nursing mothers and children under five should be stated under the following headings:—

1. Is supply granted only on medical certificate?—Yes.
2. Where a Centre is available, is attendance at the Centre a necessary condition?—No.
3. What is the usual period for which the supply is granted before the case is again considered?—4 weeks.
4. Is a further medical examination made in cases of renewed application?—Yes.
5. Is supply granted to expectant mothers at any stage of pregnancy?—Usually at the later stages. Only in exceptional cases in early months.
6. Is the quantity of food or milk supplied governed in all cases by the certified medical requirements of the case?—The quantity is usually one pint of milk per day.
7. Usual weekly quantity of liquid milk per person:—
mothers, 7 pints; children, 7 pints.
8. Is liquid milk delivered at the homes?—The order is given to a local tradesman.
9. Are any, and if so what, steps taken to ensure, as far as possible, that the milk and other food supplied are consumed by the persons for whom the supply is intended?—The Health Visitor impresses this point on the people.
10. Have any arrangements been made for the supply of cooked meals?—No.
11. Remarks.

NOTE.—If an income scale has been adopted for the purposes of the supply of food and milk, a copy should be attached.

Part II.

Statement showing quantity and cost of milk, milk substitutes and other food supplied under Maternity and Child Welfare Schemes to expectant and nursing mothers and children under five years of age during the years ended 31st December, 1934, 31st December, 1935, and December, 1936.

	Year.					
	1934		1935		1936	
	Mothers	Children	Mothers	Children	Mothers	Children
1. No. of persons supplied with liquid milk, dried milk, milk substitutes, and other food preparations	66	125	83	118	92	143
2. Liquid milk— Total quantity supplied (galls.) Grade, ordinary or pastuerised in most cases	524	974	617	830	754	1100
3. Dried milk and other milk substitutes. Total quantity supplied (lbs.) Specify preparation... ..	—	—	—	—	—	—
4. Other food preparations, specify... ..	—	—	—	—	—	—
5. Total cost to Local Authority (2)	£150		£154		£185	
(Show under Heads 2, 3 and 4 (3) separately, if possible)	(4)		—		—	
	Total £150		£154		£185	
Amount recovered by Local Authority	Nil		Nil		Nil	
	Net cost £150		£154		£185	

XIII.—Measles.

- (a) Number of cases notified. (If notification is in force. If partial notification is in force, this should be stated)—Not notifiable.
- (b) Number of deaths—(i.) from measles, 11; (ii.) from sequelae, not known.
- (c) Number of cases removed to hospital—0.
- (d) Number of special domiciliary visits—316.
- (e) Details of special staff, if any, engaged for epidemics—No special staff.

XIV.—Whooping Cough.

- (a) Number of cases notified — Disease is not notifiable.
- (b) Number of deaths—(i.) from whooping cough, 6; (ii.) from sequelae, not known.
- (c) Number of cases removed to hospital—0.
- (d) Number of special domiciliary visits—69.
- (e) Details of special staff—No special staff.

XV.—Ophthalmia Neonatorum.

- (a) Number of cases notified — (i.) by doctor, 3; (ii.) by midwife, 0; (iii.) by institution, 0.
- (b) Number of cases in which infection is gonococcal (if known)—Not known.
- (c) Number treated in residential institutions—0.
- (d) Number of cases in which there was appreciable loss of vision—0.

XVI.—Maternity Hospitals or Homes.—As explained in previous reports, the County Council some years ago provided Maternity Home accommodation in connection with the Infirmarys at Stirling and Falkirk respectively. This accommodation was provided especially for the use of abnormal cases. In addition cases may be admitted from houses where the conditions do not give the mother or baby a reasonable chance either because of the condition of the house or because of overcrowding. In certain circumstances also unmarried mothers may be admitted. For such cases as above, a modified fee of 30s is charged.

Occasionally, however, where accommodation permits, private cases may be admitted at a charge of 12s 6d per day.

The following is a copy of the reports by the doctors in charge of the Homes for the year:—

STIRLING MATERNITY HOME.

(Physician in Charge—Dr. Eva Cairns.)

ANNUAL RETURN OF CASES FROM THE COUNTY OF STIRLING.

Total Admissions, 415. County, 168.

I. Ante-natal cases—County, 32.

Conditions found—

Hyperemesis Gravidarum	7
Pyelitis	6
Albuminuria	4
Cystitis	1
Threatened Abortion	1
Antepartum haemorrhage	2
Tachycardia	1
Recent Operation	2
Investigation of Presentation	1
Not in Labour	6

Results:—

Satisfactory	31
Died	1

Cause of Death:—

Antepartum haemorrhage.

2. Abortions—County	9
Complete Abortion	4
Incomplete Abortion	3
Hysterotomy	2
Results:—	
Satisfactory	8
Died	1
Cause of Death—Uraemia.	
Complications:—	
Hyperemesis	1
Eclampsia	1
Pyelitis	1
3. Normal Deliveries—93.	
Complications	22
Induced Labour	1
Albuminuria	4
Eclampsia	3
Pyelitis	3
Breech Presentation	2
Twins	1
Accidental Haemorrhage	1
Placenta Praevia	1
Anencephalic Foetus	2
Prematurity	1
Phlebitis	1
Cardiac Disease	1
Postpartum Haemorrhage	1
Doctor present	13
Results:—	
Satisfactory	93
4. Abnormal Deliveries—County, 30.	
Conditions found:—	
Disproportion and Contracted Pelvis	2
Inertia and Delay	8
“Failed Forceps”	1
Occipito-posterior Presentation	2
Transverse Presentation	1
Breech Presentation	3
Face Presentation	3
Transverse Presentation with Placenta Praevia..	2
Albuminuria	2
Eclampsia	1
Pleurisy, Debility	1
Pneumonia	1
Cardiac Disease	2
Recent Abdominal Operation	1

Type of Delivery:—	
Forceps	20
Cæsarean Section	7
Craniotomy	1
Manipulative	2
Results:—	
Satisfactory	29
Died	1
Cause of Death—Influenza Pneumonia.	
5. Other Cases—County, 4.	
Retained Placenta	2
Primary Postpartum Haemorrhage	1
Secondary Postpartum Haemorrhage	1
Results—Satisfactory	4
6. Infants—County	124
Live Births	109
Still Births	15
Males	60
Females	64
Neonatal Deaths	4
7. Ante-natal Clinic:—	
New Cases Seen	313
Total Attendances	949

FALKIRK MATERNITY HOME.

(Physicians in Charge—Drs. J. L. and J. A. Horne.)

ANNUAL REPORT ON COUNTY COUNCIL CASES.

The number of cases admitted during the year ending 31st December, 1936, was 221, an increase of 10 over last year.

Of this total 31 were Pre-natal cases, i.e., complications arising during the course of Pregnancy, of whom 9 are also included in Deliveries.

One hundred and forty-five were Normal Deliveries. In 33 of these there were complications such as—Albuminuria, Eclampsia, Breech Presentation, Retained Placenta, Pyelitis and Hyperemesis.

Fifty were Abnormal Deliveries necessitating the application of instruments on 19 occasions; Arrest of Haemorrhage, 11; Surgical Induction, 18; Cæsarean Section, 2.

Four were Post-partum cases, i.e., transferred to Hospital owing to complications arising following confinement at home.

The number of infants born during the year was 195, of these 173 were born alive; 12 were Still-born, and 10 were either macerated or insufficiently developed.

Deaths of Infants under one week amounted to 13.

Maternal Mortality, 4 (being slightly over 1%).

The number of attendances at the Ante-Natal Clinic was 783.

No deaths took place of any patient attending the Ante-Natal Clinic.

FALKIRK AND DISTRICT ROYAL INFIRMARY—

MATERNITY HOME.

County Council Patients.

STATISTICS.

1. Pre-Natal Cases—31.

Conditions found:—

Albuminuria	11
Hyperemesis	4
False Labour	2
Pyelitis	3
Eclampsia	2
Acute Sciatica	1
Renal Colic	1
Ante-Partum Haemorrhage	3
Laryngitis	1
Cardiac	2
Epilepsy	1

Results:—

Satisfactory	21
Included under other Deliveries	9
Deaths	1

Cause of Death:—

Eclampsia.

2. Normal Deliveries without Complications 112

Results:—

Satisfactory	112
--------------------	-----

3. Normal Deliveries with Complications 33

Conditions found:—

Albuminuria	9
Breech Presentation	5
Hyperemesis	2
Ante-Partum Haemorrhage	3
Retained Placenta	1
Broncho Pneumonia	1
Cardiac	2

Acute Hysteria	I
Occipito Posterior Position	2
Cystocele and Rectocele	I
Uterine Inertia	I
Twins	2
Hydramnios	I
Placenta Praevia	2

Results:—

Satisfactory	3I
Deaths	2

Cause of Death:—

Post-Partum Eclampsia	I
Twin-birth and Embolus	I

4. Abnormal Deliveries—50.

Conditions found:—

Contracted Pelvis	4
Occipito Posterior	6
Ante-Partum Haemorrhage	II
Transverse Presentation	3
Placenta Praevia	3
Delayed Labour	IO
Foetal Distress	6
Brow Presentation	2
Fatigue of Patient	5

Treatment:—

Forceps	IG
Surgical Induction	IG
Arrest of Haemorrhage	II
Cæsarean Section	2

Results:—

Satisfactory	49
Deaths	I

Cause of Death:—

Pneumococcal Peritonitis.

5. Post-Partum Cases—4.

Conditions found:—

Delivered before admission	2
Retained Placenta	2

Treatment:—

Placenta Manually removed.
Placenta expressed.

Results:—

Satisfactory	4
--------------------	---

6. Number of Infants—195.

Born Alive	173
Still-born	12
Macerated	10
Born before admission	3

Infantile Mortality—13.

Cause of Death:—

Premature Twins	4
Subtentorial Haemorrhage	2
Tetany	1
Haematuria	1
Prematurity after Albuminuria	3
Prematurity after A.P.H.	2

Maternal Mortality 4
(being slightly over 1%).

The Number of Attendances at the Ante-Natal Clinic was 783.

No deaths took place of any patient attending the Ante-Natal Clinic.

XVII.—Homes for Unmarried Mothers before and after Confinement.—None.

XVIII.—Hospitals for Sick Children.—None.

XIX.—Convalescent Homes.—None.

XX.—Boarding-out.

No children were boarded-out by Local Authority.

XXI.—Home Helps.

None employed.

XXII.—Educational.

Classes, Lectures, etc.—None.

XXIII.—Note of Agencies, not referred to above, associated with Scheme.—None.

XXIV.—Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations (Scotland), 1929.

(1) Total number of cases of (a) puerperal fever and (b) puerperal pyrexia occurring in the area of the Local Authority. (Corrected figures as finally diagnosed.) (a) Puerperal fever, 15; (b) puerperal pyrexia, 17.

(2) Total number of cases removed to Infectious Diseases Hospital—(a) puerperal fever, 15; (b) puerperal pyrexia, 11.

- (3) Total number of deaths — puerperal fever, 5; puerperal pyrexia, 0.
- (4) Number of cases (a) puerperal fever and (b) puerperal pyrexia following instrumental delivery —Not ascertained.
- (5) Number of deaths occurring in cases included under (4)—Not known.
- (6) Number of cases of puerperal fever and puerperal pyrexia where the Local Authority provided assistance on the request of medical practitioners for—

	Puerperal	
	Fever.	Pyrexia.
(i.) Consultant Service	5	—
(ii.) Bacteriological Examinations	—	—
(iii.) Skilled Nurses at Home	—	—
(iv.) Hospital Treatment	15	11

- (7) Observations on the working of the Regulations, including any remarks on the extent to which assistance is sought by and granted to medical practitioners. It only requires to be said that assistance under the Regulations is freely sought by and granted to medical practitioners.

XXV.—Other Provisions (e.g., Treatment of Pneumonia and Bronchitis; after-care of cases of Poliomyelitis Anterior Acuta)—None.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

The annual report on School Medical Inspection and Treatment of School Children has already been printed separately. The School Medical Inspection year ends as at 31st July, and it is accordingly somewhat inconvenient to have it included in this report.

INFECTIOUS DISEASE.

As will be seen from the chart on the following page, the huge wave of Scarlet Fever and Diphtheria which flooded the County in 1933 and 1934 began to subside throughout 1935, and by the end of 1936 it had almost spent itself. Still, however, the figures for Diphtheria are rather higher than is usual in non-epidemic years. The total number of infectious diseases notified to the Department throughout the year was 1366 as compared with 2251 in 1934 and 1806 in 1933. Tables VIII. and IX. show the figures, the former in parishes, and the latter according to the age-grouping of the cases.

Enteric Fever.—Twenty-six cases were notified, of which, however, 24 were classified as paratyphoid B, which is of a much less severe type than true enteric fever.

Twelve of these occurred in the Balforn district. In connection with this outbreak, at the request of the Department of Health, I submitted the following report:—

“ On the 4th April I received intimation from the Glasgow Public Health Department that a child, S. B., aged 2 years, had been sent to a Nursing Home in Glasgow on 25th March, because of ‘ pyelitis.’

“ She was found to have a febrile illness, and a blood specimen taken on 2nd April was found to give a positive Widal reaction for paratyphoid B. She was therefore removed to Ruchill Hospital on the following day.

“ Dr. Robertson notified as suffering from paratyphoid B, three patients, two of whom were removed to Bannockburn Hospital on the 9th April, while the other was considered too ill for removal, but was removed to Hospital at a later date. Blood specimens from all three had given a positive Widal reaction for paratyphoid B.

“ Hearing of cases of indefinite illness in Balforn, I visited the village on Friday, the 10th April, along with Mr. Stewart, the Sanitary Inspector, and interviewed Dr. Robertson and Dr. Fisher, each at his home, with whom the situation and its possibilities were fully discussed.

“ I also saw the father of S. B., at his house, and learned particulars of the little girl’s illness.

“ Dr. Fisher informed me of two patients, who he thought were showing symptoms of paratyphoid, namely, T. B., and Mrs. S. Along with Dr. Fisher I visited the former, and examination convinced me that he was suffering from paratyphoid.

“ Dr. Fisher, on my suggestion, had a blood specimen taken from each, and these gave a positive Widal reaction for paratyphoid B.

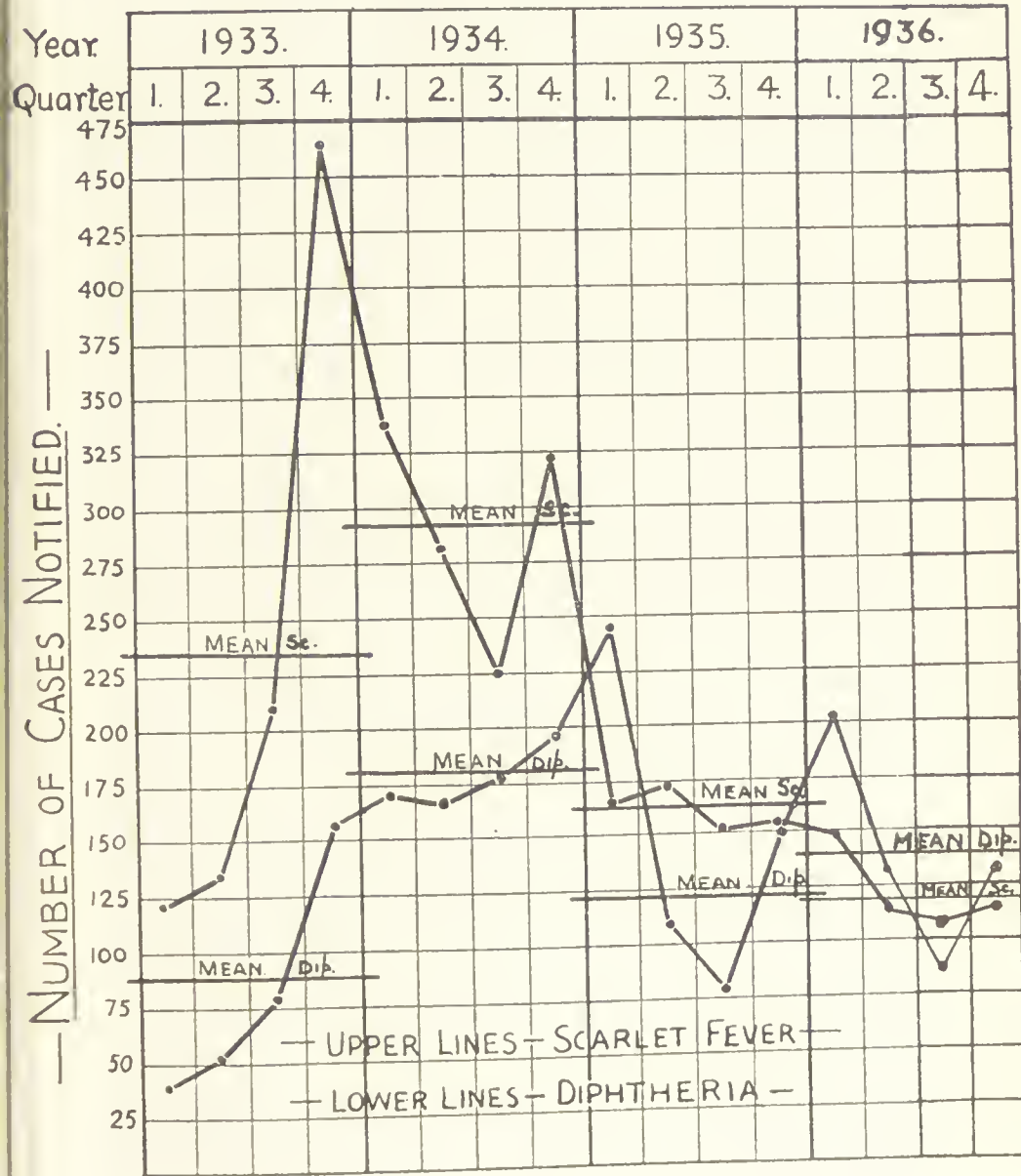
“ Mr. B. was averse to going to Hospital, and there was ample accommodation for his isolation at home.

“ Mrs. S.’s cardiac condition was such that Dr. Fisher considered it advisable to leave her at home also.

“ The milk supplies were from three sources, namely:— (1) The Co-operative Society; (2), K. Farm, and (3), T. Farm.

“ The Co-operative Society obtained its supply from Kirkintilloch Co-operative Society, whose milk, being pasteurised and bottled, was excluded as a source of the infection.

CHART SHEWING INCIDENCE OF SCARLET FEVER AND DIPHTHERIA—1933—1936.



" Mr. Stewart and I visited K. Farm, but were assured that there had been no illness whatever there for more than a year.

" At T. Farm we found that the mistress and the dairymaid, about five weeks previously (approximately the 4th March) had had a short and very mild illness.

" Medicine was prescribed. Mrs. — had not been in bed, and the dairymaid had been for only one day.

" Although for the past three years Mrs. — had taken very little to do with the actual work of milk production, it was considered advisable to request both her and the dairymaid to abstain in the meantime from anything in connection with the milk until permission was given. They were not even to handle the milk receptacles.

" I thereupon suggested to the medical attendant to have blood samples from Mrs. — and the dairymaid tested for the Widal reaction.

" That was done, and in due course the report was received from Edinburgh University Bacteriological Laboratory that the samples each gave a positive Widal reaction for *B. Paratyphosus B.*

" As a result I again visited T. Farm along with the Medical Attendant and Mr. Stewart on Saturday, the 18th April, and arranged that the Doctor was to take samples of faeces and urine from Mrs. — and the dairymaid.

" These were duly taken on the Sunday, 19th April, and submitted to Edinburgh University Bacteriological Laboratory.

" In due course it was reported that the urine and faeces of the maid were free from any pathogenic bacteria, but that, while Mrs. — urine gave a negative result, *B. Paratyphosus B.* had been isolated from her faeces.

" Before the results of the urine and faeces tests were known Mrs. — asked the Doctor to have samples of blood from her son and her daughter tested for the Widal reaction. The son's blood gave a negative reaction, but strangely enough the daughter's blood gave a positive reaction, although she had enjoyed her normal good health. She seldom had anything to do with the milk, but she was warned to keep away from it entirely, and in the meantime the Doctor arranged to have her excreta tested for the presence of *B. Paratyphosus B.*

" All along the greatest emphasis had been placed on the need of extreme care on the part of the milkers and others engaged in handling the milk, with regard to their toilet, especially of the hands.

" From K. Farm milk was being retailed in Balforn and Killearn, while the T. Farm milk was being retailed only in

Balfron. It was significant that no cases had been notified from Killearn.

" Both farms also sent wholesale supplies to Ross's Dairy, Dumbarton Road, Partick, but no cases could be traced in the area of supply. It is to be remembered, however, that all the supplies received by Ross's firm were pasteurised before being retailed.

" On the morning of Monday, 27th April, a 'phone message was received from Edinburgh University Bacteriological Laboratory that the examination of the faeces and urine of the dairymaid had given a negative result, also that the examination of Mrs. — urine had given a like result, but that the *B. Paratyphosus B.* had been isolated from Mrs. — faeces.

" On the afternoon of the same day the Doctor, Mr. Stewart and myself visited T. Farm and informed Mrs. — of the result of the tests. Mrs. — informed us that she had made arrangements to stop selling milk in Balfron that day, 27th April, and that Mr. — of K. Farm was to take over her retail business in the village. She also said that she was going on holiday on Wednesday, 29th April, for about three weeks to England.

" Mrs. — was advised that, while the dairymaid might resume her ordinary duties, her daughter was to do nothing in connection with the dairy until further notice. In due course, however, it was reported from the University Laboratory that the bacteriological tests for the presence of *B. Paratyphosus B.* in the daughter's excreta had proved quite negative.

" There is appended a tabulated statement of the cases with certain other relative information, from which it will be seen that the milk supply for the first patient was from both T. and K., in the case of the second patient the milk supply was from K., but Mrs C., the patient, worked as a day-help in a house, where she probably partook of milk from T.

" The third, fourth, fifth and ninth patients had their milk supply from T. Farm, while the sixth, seventh, eighth, tenth, eleventh and twelfth from T. Farm and partly from K. Farm.

" Three factors emerged pointing to the milk from T. Farm being the source of infection. First, four of the patients had had their milk from T. Farm alone, six had had their supply from K. Farm and T. Farm, while the second case had also probably partaken of milk from the double source. Second, no cases were reported from Killearn, where K. retailed milk, but not T. Third, while there had been no illness for over a year at K. Farm, there were two recent cases at T., namely, Mrs. — and the maid, whose blood gave a positive Widal reaction to *B. Paratyphosus B.*, making it

practically certain that the illness from which they had suffered was a mild form of Paratyphoid B.

" It is to be remembered that, while the specific organism of Paratyphoid B. was not found in the maid's excreta, the general rule is for Paratyphoid B. patients to get clear of the bacillus at a more or less early period of convalescence.

" The column indicating the dates of sickening shows that the sixth and ninth cases were the first to sicken, namely, on the 20th March, the fifth case sickened on the 24th March, while the first, third and fourth sickened on the 25th March; the dates of sickening of the twelve cases covering a period from the 20th March till the 20th April. There was considerable dubiety as to the exact date of sickening in the tenth case, as the illness was very mild—in all probability it was really earlier than the 10th April as stated.

" With regard to the eleventh case, the alleged date of sickening, if correct, would indicate that the infection occurred about the first week of April,—that would be towards the very end of the period when the milk from T. Farm was infective.

" The point to be made here is that, when allowance is made for the incubation period of the disease, the date of sickening would indicate a period corresponding to the time when in all probability the maid's excreta would be infective.

" It will be noticed that there is considerable divergence between the alleged dates of sickening and the dates of removal to Hospital. The shortest period stated as elapsing between these dates was four days, and the longest thirty days. Only in one or two cases was the illness other than mild, and the nature of the illness generally had to be confirmed by the Widal reaction. In several of the cases medical advice was not sought until a late period.

" All things considered, it is surprising that the outbreak has been of such a limited nature.

" Although there was no suspicion of the water supply, it being from a moorland source, samples were submitted for chemical and bacteriological analysis, and these were favourably reported upon."

TABULATED STATEMENT

No.	Name	Sex	Age.	Date of Sickness	Milk Supply	Date of removal to Hospital	Notes
1	S. B.	F.	2	(see note) 25/3/36	H. & S.	3/4/36 (Ruehill)	This child was sent to a nursing home in Glasgow on 25th March. She was found to have a febrile illness and a blood specimen taken on 2nd April proved positive for Paratyphoid B when she was removed to Ruehill Hospital.
2	Mrs. M. C.	F.	57	1/4/36	S. H.	9/4/36	
3	W. A. M.	M.	12	25/3/36	H.	9/4/36	
4	R. M.	M.	34	25/3/36	H.	Too ill for removal. Nursed at home.	Removed to Hospital later.
5	T. H. B.	M.		24/3/36	H.		
6	Mrs. M. S.	F.	55	20/3/36	H. & S.	Nursed at home.	
7	H. C.	M.	53 $\frac{3}{4}$	30/3/36	H. & S.	18/4/36	
8	E. R.	M.	37	4/4/36	H. & S.	17/4/36	
9	N. F.	F.	44	20/3/36	H.	18/4/36	
10	L. G.	F.	40	10/4/36	H. & S.	21/4/36	
11	C. M. L.	F.	54	20/4/36	H. & S.	24/4/36	
12	D. M. K.	M.	22	28/3/36	H. & S.	27/4/36	

Another outbreak of Paratyphoid B. occurred in the Burgh of Kilsyth, the number of cases notified being eight. The source of infection here could not be traced. Four of the patients belonged to one family. In all the cases a positive result was obtained for B. Paratyphosus B.

No deaths occurred.

Scarlet Fever.—As already noted, the epidemic of Scarlet Fever had abated by the end of the year. The total number of notifications was 481, compared with 668 in 1935, 1188 in 1934, and 1046 in 1933. The parishes chiefly affected are here shown with the number of notifications per 1000 of population:—

Parish of Burgh.	No. of Cases.	Notifications per 1000 of population.
Killearn	10	11
Airth... ..	21	9
Burgh of Denny	44	8
Burgh of Kilsyth... ..	62	8
Campsie... ..	42	8
Strathblane	10	8
Denny and Dunipace ...	44	7
Kilsyth... ..	13	5
Larbert	62	4
Falkirk	36	4
St. Ninians... ..	56	3
Muiravonside... ..	19	3
Grangemouth... ..	25	2

Of the 481 cases, 452 were removed to hospital, and only two proved fatal.

Diphtheria.—The figures for this disease, as I have already said, are still rather above the average, the number of notifications throughout the year being 545, which, however, is much below the figures for 1934 and 1935. The incidence of the disease in the first half of the year moreover was just about 50 per cent. more than in the second half.

In this case the parishes chiefly affected were:—

Parish or Burgh.	No. of Cases.	Notifications per 1000 of population.
Muiravonside	60	10
Logie	19	9
Airth	21	9
Slamannan... ..	27	9
Kilsyth... ..	19	7
Denny and Dunipace ...	39	6
St. Ninians	96	6
Burgh of Grangemouth ...	78	6
Campsie	31	6
Grangemouth... ..	41	4
Larbert... ..	47	3
Denny Burgh	13	2
Kilsyth Burgh... ..	22	2

Most of the cases were amongst children of school age, although 94 occurred among younger children, while 79 were among persons of 15 years and over. With the exception of five patients, all were removed to Hospital. In all, there were 18 deaths, seven being of children under five years, nine between five and ten years, and one between ten and fifteen years. The other fatal case was that of a female patient over 35 years of age. This gives a fatality rate of 3.3 per cent. as compared with 4.4 per cent. in the previous year.

Puerperal Infections. — The number of notifications received was 32, of which 15 were puerperal fever and 17 of puerperal pyrexia. All 15 puerperal fever patients were removed to Robroyston Hospital, Glasgow, and of the 17 cases of pyrexia, 11 were removed. The number of deaths from these infections was five.

INFECTIOUS DISEASES.

I.—Return of Cases of Infectious Disease notified, etc., during the Year ended 31st December, 1936.

THE YEAR 1880.										
NUMBER OF CASES COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.										
DISEASE	At all Ages	At age—Years.							Cases removed to hospital.	Cases not removed to hospital.
		Under 1.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 45.	45 and under 65.	65 and up-wards.		
		1	2	3	4	5	6	7			8	9	10

A.—DISEASES SPECIFIED IN THE INFECTIOUS DISEASE (NOTIFICATION) ACT, 1889, AND DISEASES NOTIFIABLE IN TERMS OF REGULATIONS MADE UNDER SECTION 78 OF THE PUBLIC HEALTH (SCOTLAND) ACT, 1897.†

Typhoid or enteric fever‡	26	5	5	10	5	1	23	3	Cases notified in a previous year and removed to hospital for the first time during 1936.
Typhus fever ... ..	...	...	...	...	...	...	...	...	...	...
Smallpox ... ..	...	...	...	...	...	...	...	...	...	...
Scarlet fever or scarlatina	481	6	141	275	39	19	1	...	452	29	
Diphtheria and membranous croup	545	4	90	372	52	22	4	1	540	5	
Erysipelas	48	...	2	2	9	14	18	3	7	41	
Puerperal fever	15	...	...	...	6	9	...	...	15	...
Cholera ... ..	...	...	...	...	...	...	...	...	...	...
Relapsing fever ... ..	...	...	...	...	...	...	...	...	...	...
Continued fever ... ..	...	...	...	...	...	...	...	...	...	...
Ophthalmia neonatorum	3	3	...	...	...	...	...	...	...	3
Infective jaundice ... ..	...	...	...	...	...	...	...	...	...	...
Malaria	1	...	...	...	...	1	...	...	...	1
Dysentery ... ..	...	...	...	...	...	...	...	...	...	...
Acute poliomyelitis	1	...	1	...	...	...	...	...	1	...
Encephalitis lethargica	1	...	...	1	...	...	...	...	1	...
Acute primary pneumonia	85	10	21	20	6	11	9	8	21	64	
Acute influenzal pneumonia	20	1	6	2	2	5	3	1	10	10	
Puerperal pyrexia	17	...	...	...	2	15	...	...	11	6
Plague ... ..	...	...	...	...	...	...	...	...	...	...
Cerebro-spinal fever	3	...	1	1	1	...	...	...	3	...
Pulmonary tuberculosis	50	...	2	7	12	27	2	...	540	10	5
Non-pulmonary tuberculosis	70	2	15	33	10	9	1	...	542	28	53
	1366	26	279	718	144	142	43	14	1166	200	8

†Paratyphoid B. 24 5 3 10 5 1 22 2

II.—State Name of Hospital or Hospitals in which cases were Treated.

Bannockburn Hospital, Stirling.

Falkirk Royal Infirmary.

Camelon Hospital, Falkirk.

Stirling Royal Infirmary.

Avonside Hospital, Grangemouth.

Ochil Hills Sanatorium, Milnathort.

Robroyston Hospital, Glasgow.

Smallpox	Diphtheria and Membranous (Group)	Erysipelas	Scarlet Fever	Typhus Fever	Enteric Fever	Continued Fever	Puerperal Fever	Puerperal Pyrexia	Cerebro-Spinal Fever	(Ophthalmia Neonatorum	Malaria	Dysentery	Infantile Paralysis	Acute Primary Pneumonia	Acute Influenzal Pneumonia	Infective Jaundice	Encephalitis Lethargica	Pulmonary Tuberculosis	Non-Pulmonary Tuberculosis	Total
Benny	38	2	43	...	3	...	2	1	...	...	...	...	...	8	...	...	...	4	5	106
Dunipace	1	...	1	...	...	...	1	...	1	...	...	...	...	15	...	...	...	...	...	4
Denny and Dunipace (Burghal)	13	4	44	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	81
Gargunnoch ... ..	...	...	2	...	...	...	...	...	...	1	...	...	...	...	1	...	...	1	1	4
Kilsyth	19	...	13	...	...	...	1	...	...	1	...	...	...	...	1	...	...	2	2	37
Kilsyth (Burghal)	22	7	62	...	8	...	2	3	...	1	...	...	...	11	3	...	...	3	3	124
Kippen ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Logie	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	21
Logie (Burghal)	6	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	17
St. Ninians	96	6	56	...	...	...	1	3	1	...	...	...	...	11	1	...	...	10	26	211
Stirling	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
Airth	21	3	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	49
Falkirk	16	4	36	...	2	...	2	2	...	...	...	...	...	8	...	...	1	2	3	76
Grangemouth	41	3	25	...	...	...	1	1	1	1	...	...	...	...	...	...	...	4	3	80
Grangemouth (Burghal)	78	2	18	...	...	...	...	...	...	...	...	...	...	2	11	...	...	5	2	118
Garbert	47	3	62	...	1	...	1	1	...	...	1	...	...	4	1	...	...	9	4	131
Muiravonside	60	6	19	...	...	...	2	...	...	...	...	...	...	...	2	...	...	2	1	92
Shamnan	27	1	3	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	38
Baldernock	1	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	4
Buchanan	2	...	1	...	12	...	...	...	...	...	...	...	...	...	...	...	...	2	...	17
Campsie	31	6	42	...	...	...	1	6	...	...	...	...	...	21	...	...	...	6	...	4
Princes	1	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	115
Finley ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
Killearn	2	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Strathblane	1	1	10	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	15
Total	545	48	481	...	26	...	15	17	3	3	1	...	1	85	20	...	1	50	70	1366
Moved to Hospital	540	7	452	...	23	...	15	11	3	...	...	...	1	21	10	...	1	40	42	1166

PREVENTION, DETECTION AND TREATMENT OF TUBERCULOSIS.

For the whole of Scotland the deaths from Tuberculosis numbered 3664, which is equal to a death-rate of 0.74 per 1000 of population, which is the same as that for the previous year, these rates being the lowest recorded. Respiratory Tuberculosis accounted for 0.55 per thousand of population.

For Stirlingshire the rates were much lower, the rate for all forms of the disease being 0.49 per 1000, of which 0.33 was due to Pulmonary Tuberculosis. From Table X. it will be seen that the rate for all forms is the second lowest on record for the County, and is rather less than one-fourth of the average figure for 1891-1895, a very notable reduction.

**TABLE X.—Mean Death Rates from Tuberculosis in
Quinquennial Periods—1891-1936.**

Quinquennial Period	Death Rates per 1000 of Population.		Non-Pulmonary Tuberculosis
	All forms of Tuberculosis.	Pulmonary Tuberculosis	
1891-1895	2.07	1.32	0.75
1896-1900	1.80	1.33	0.47
1901-1905	1.58	1.16	0.42
1905-1910	1.55	1.03	0.52
1911-1915	1.34	0.77	0.57
1916-1920	1.00	0.72	0.38
1921-1925	0.86	0.55	0.31
1926-1930	0.69	0.44	0.25
Year 1931	0.70	0.48	0.22
„ 1932	0.69	0.47	0.22
„ 1933	0.48	0.30	0.18
„ 1934	0.49	0.32	0.17
„ 1935	0.55	0.40	0.15
„ 1936	0.49	0.33	0.16

TABLE XI.—Tuberculosis—Statistical Returns, 1936.

I. Return of Cases of Tuberculosis notified during the Year ended 31st December, 1936.

Lea County of Sliding

	Age-groups.							Total.	Number of cases notified during year in which diagnosis of tuberculosis has been confirmed.
	Under 5	5 and under 10	10 and under 15	15 and under 25	25 and under 35	35 and under 45	45 and under 65 upwards		
Pulmonary	1.	2.	3.	4.	5.	6.	7.	8.	9.
{ Males ...	2	1	2	5	8	7	1	...	26
{ Females ...	...	...	4	7	8	4	1	...	21
Non-Pulmonary	5.	12	10	5	1	...	...	...	40
{ Males ...	...	4	7	5	4	...	1	...	30
{ Females ...	...	...	...	...	...	...	...	...	11

II.—Return showing the Number of Cases which received Treatment under the Tuberculous Scheme in Sanatoria or other Institutions during the Year ended 31st December, 1936.

		NUMBER OF PATIENTS.					In Institutions on December 31
	In Institutions on January 1.	Admitted during the year.		Discharged during the year.	Died in the institutions		In Institutions on December 31
		1.	2.		3.	4.		5.
Pulmonary	18	27		27	1	4	13
	23	25		26	1	1	20
	...	3		2	...	...	1
	...	2		1	...	...	1
Non-Pulmonary	2	13		10	1	...	4
	...	8		6	...	...	2
	5	20		20	1	...	4
	3	11		11	...	...	3
Total	51	109		103	4	5	48

III.—Return of Number of Persons Resident in the Area at 31st December, 1936, who were known to be Suffering from Tuberculosis.

		Number of Cases.										Total.		
	Under 5	5 and under 10.	10 and under 15.	15 and under 25.	25 and under 35.	35 and under 45.	45 and under 65.	65 and upwards.	Age-groups.					
		Not known												
PULMONARY. §	53					
	58					
	3	3	13	29	55	32	29	3	169					
	...	1	18	46	45	39	21	1	171					
Total.											451			
Non-Pulmonary.	3	6	31	84	137	102	83	5	451					
					
					
					
1. Abdominal	3	14	25	18	12	1	2	...	75					
					
					
					
2. Spine					
					
					
					
3. Bones and joints (exclusive of spine)...					
					
					
					
4. Superficial glands...					
					
					
					
5. Lungs					
					
					
					
6 Other parts or organs					
					
					
					
Total.											455			
PULMONARY AND Non-Pulmonary Total	21	83	168	195	199	126	109	5	906					

IV.—Return of Number of Persons who died from Tuberculosis in the Area during the Year ended 31st December, 1936, with particulars as to period elapsing between notification and death and between discharge from an institution and death.

	Pulmonary.		Non-Pulmonary.	
	Males	Females	Males	Females
Number of persons who died from tuberculosis of whom—				
Not notified or notified only at or after death	3	...	4	4
Notified less than 1 month before death	3	1	3	2
from 1 to 3 months	3	5	...	1
" 3 to 6 months	...	3	1	...
" 6 to 12 months	...	2	1	1
" 1 to 2 years	2	2	...	...
" over 2 years	6	1	1	...
Number who died within 28 days after discharge from an institution	2	1	1	1
Number who died more than 28 days after discharge from an institution	4	7	4	2

Notifications of Tuberculosis.—The number of notifications of Pulmonary Tuberculosis in 1936 was abnormally low, being only 50 as compared with 72 in 1935, 63 in 1934, 62 in 1933, from which it would appear that the attack-rate as well as the death-rate is gradually dwindling. Notifications of non-pulmonary cases do not show quite the same fall, although the number notified during the year, 70, was the second lowest recorded.

Institutional Treatment.—From Table XI. (II.) it will be seen that 41 cases of Pulmonary Tuberculosis were under treatment in the Sanatorium and Hospitals at the beginning of the year. The number admitted in 1935 was 57, making a total of 98 patients who received treatment. Of these, 56 were discharged, and seven died, leaving 35 under treatment at the end of the year. Of those discharged the following is a brief note of the results of treatment as furnished to me by the Medical Superintendent:—Disease arrested, 3; very much improved, 2; much improved, 11; improved, 32; and not improved, 8.

With regard to the treatment of non-pulmonary cases, 62 were dealt with—mostly in the two Infirmeries at Falkirk and Stirling. Two deaths occurred, but otherwise much good work was done both medically and surgically.

Persons known to be Suffering from Tuberculosis.—From time to time occasion is taken to scrutinise the medical reports on cases with a view to removing from the register those who can not now be regarded as suffering from Tuberculosis. After deducting the cases thus removed and those which have died or left the county, and adding the fresh cases notified during the year, the total number left on the registers as at 31st December was 906, of which 451 were cases of pulmonary and 455 of non-pulmonary tuberculosis.

Domiciliary Treatment.—As in former years "Domiciliary treatment" has played a most useful part in the scheme. This "treatment" consists really in the giving of grants of extra nourishment to certain tuberculous patients whose condition is likely to be improved or ameliorated by such nourishment, and who are unable to obtain it without assistance. Usually the grant is for milk, or milk and eggs, and occasionally malt and cod liver oil. For the year under report the number of persons to whom such a grant was given was 115, the cumulative number of weeks' treatment being 3600, giving an average of 31 weeks per patient. The total cost of this domiciliary treatment was approximately £550.

TREATMENT OF VENEREAL DISEASES.

From the Annual Returns to the Department of Health, prepared by the Medical Officers in charge, I have taken the undernoted information:—

Clinic at Stirling Royal Infirmary.

(Physician in charge—Dr. Angus.)

	Males.	Females.	Total for Previous Year.	Year.
Patients Attending	348	200	548	438
Total Attendances	4493	1643	6136	5545
Blood Tests	—	—	294	242
Specimens examined by the Staff of the Centre for detection of:—				
(a) Spirorchetes... ..	—	—	5	—
(b) Gonococci	—	—	523	560

Distribution of Cases:—

(a) County of Stirling, including small Burghs—

Larbert	3	Kilsyth	7
Grangemouth	2	Denny	5
Bannockburn	13	Cambusbarron	7
Buchlyvie	2	Causewayhead	4
Cowie... ..	9	Millhall, Fallin & Throsk	8
Bridge of Allan	11	Plean	13
Kippen	6	Balfron	1

(b) County of Clackmannan, including small Burghs—

Alloa	19	Tullibody... ..	5
Sauchie	7	Tillicoultry and	
Dollar... ..	5	Coalsnaughton	6
Clackmannan	3	Menstrie	6
Alva... ..	15		

(c) Burgh of Falkirk—4.

(d) Burgh of Stirling, including St. Ninians & Raploch—174.

(e) County of Perth—

Dunblane	8	Braco... ..	3
Doune... ..	6	Blackford	3
Callander	5	Port of Menteith	1

- (f) County of Fife—Cardenden—1.
- (g) Burgh of Kirkcaldy—1.
- (h) County of West Lothian—Bo'ness—1.

Clinic at Falkirk Royal Infirmary.
(Physician in charge—Dr D. Ferguson.)

	Males.	Females.	Total for Previous Year.	Year.
Patients Attending	176	97	273	252
Total Attendances	5433	2947	8380	9166
Blood Tests	—	—	153	149
Specimens examined by the Staff of the Centre for detection of:—				
(a) Spirochetes	—	—	3	4
(b) Gonococci	—	—	346	333

Distribution of Cases—

- (a) County of Stirling, including small Burghs—

Larbert	4	Airth	1
Polmont	2	Bonnybridge and	
Maddieston	3	High Bonnybridge ...	9
California	1	Denny and Dunipace ...	8
Grangemouth	21	Plean	1
Bothkennar	1	Dennyloanhead and	
Laurieston	3	Banknock... ..	3
Stenhousemuir	3	Kilsyth	1

- (b) County of Clackmannan—Alloa—1.
- (c) Burgh of Falkirk—76.
- (d) Burgh of Stirling—4.
- (e) County of Fife—Methil—2.
- (f) County of West Lothian—Bo'ness—1.
- (g) County of Zetland—Lerwick—1.
- (h) City of Glasgow—1.
- (i) Areas outside Scotland—Jugo-Slavia—3, Stockholm—1.

CARE OF THE SICK POOR.

The following are the arrangements made for the treatment of the Sick Poor:—

1. Domiciliary Medical Service is provided through local Medical Officers.

2. Home Nursing Service.—Grants are made annually to local Nursing Associations whose nurses are available in suitable cases.

3. Institutional Treatment may be obtained at Falkirk Royal Infirmary and Stirling Royal Infirmary.

4. Specialist (including laboratory) services.—No fixed arrangements. Only in very exceptional occasions would a specialist be called in.

5. (a) Supply of Drugs and Appliances.—(a) Drugs and Appliances supplied at local dispensing chemists on prescriptions of local medical officers. (b) Dentistry and Dentures—(b) Dental treatment provided by dentists in private practice. (c) Sight-testing and Spectacles.—(c) Attended to by opticians in private practice.

Statistics.

The following figures for the year have been supplied to me by Mr. Campbell, Chief Public Assistance Officer:—

	Males	Females	Children	Total
(a) Persons who received outdoor medical relief in the Council's area	441	740	627	1808
(b) Persons who received medical treatment under the Poor Law in—				
(1) the Council's institutions, including combination institutions in which the Council has a share... ..	330	50	18	398
(2) other, including voluntary, institutions ...	2	5	—	7
Total ...	<u>773</u>	<u>795</u>	<u>645</u>	<u>2213</u>

HOSPITALS.

The gradual abatement of the epidemics of Scarlet Fever and Diphtheria has greatly relieved the pressure on the hospital accommodation, which throughout the past three years was fully taxed. For the year under review the admissions numbered 1127, of which 570 were to Bannockburn Hospital, 480 to Camelon Hospital, and 68 to Avonside Hospital. The number of admissions in the previous year was 1199, which was fully 500 less than in 1934.

The two new sectioned pavilions described in my last report were formally opened on 30th January, and they have proved of great service not only for the isolation of acute infectious disease, but also for the treatment of cases of Tuberculosis. In this connection close co-operation is maintained with the Voluntary General Hospitals.

For the year 1936 the Department of Health requested a return with regard to the Hospitals in the County, giving for each the Classification of the Accommodation provided, the statistics for the year, equipment and staff. A copy of these returns is given here for each of the three Infectious Diseases Hospitals and for the Ochil Hills Sanatorium. A note of the accommodation at the Taylorton Smallpox Hospital is also given. This hospital fortunately has been empty for many years.

Bannockburn Hospital, by Stirling.

A.—In-Patients.

1. Total number of admissions	570
2. Total number of patients discharged	526
3. Total number of deaths	15
4. Average duration of stay of patients included in 2 and 3 above	20 days
(Total patient-days divided by the sum of the deaths and discharges)	
5. Number of beds occupied:	
(a) Average during the year	43
(b) Highest, 94 on 23rd November, 1936.	
(c) Lowest, 40 on 10th September, 1936.	
6. Number of surgical operations:—	
(a) Under general or spinal anæsthesia ...	14
(b) Other operations	—

Camelon Hospital, Falkirk.

A.—In-Patients.

1. Total number of admissions	480
2. Total number of patients discharged	453
3. Total number of deaths	16
4. Average duration of stay of patients included in 2 and 3 above	28 days
(Total patient-days divided by the sum of the deaths and discharges).	

5. Number of beds occupied:—
 - (a) Average during the year 36
 - (b) Highest, 82, on 18th February.
 - (c) Lowest, 13, on 24th December.
6. Number of surgical operations:—
 - (a) Under general or spinal anæsthesia 6
 - (b) Other operations —

B.—Out-Patients.

1. Total number of persons seen in the out-patient department 9
2. Total number of attendances in the out-patient department 70

Avonside Hospital, Grangemouth.

A.—In-Patients.

1. Total number of admissions 68
2. Total number of patients discharged 66
3. Total number of deaths 3
4. Average duration of stay of patients included in 2 and 3 above 31.1 days
(Total patient-days divided by the sum of the deaths and discharges).
5. Number of beds occupied:—
 - (a) Average during the year 6
 - (b) Highest, 17, on January 6th.
 - (c) Lowest, 1, on September 20th.
6. Number of surgical operations:—
 - (a) Under general or spinal anæsthesia —
 - (b) Other operations —

Combination Smallpox Hospital, Taylorton, by Stirling. Hospital not occupied at present.

Ochil Hills Sanatorium, Milnathort.

A.—In-Patients.

1. Total number of admissions 149
2. Total number of patients discharged 145
3. Total number of deaths 14
4. Average duration of stay of patients included in 2 and 3 above 219.7 days
(Total patient-days divided by the sum of the deaths and discharges).

5. Number of beds occupied:—

- (a) Average during the year 95.5
 (b) Highest, 101, on March 1, 1936.
 (c) Lowest, 87, on October 13, 1936.

6. Number of surgical operations:—

- (a) Under general or spinal anæsthesia —
 (b) Other operations —

CONSCIENTIOUS OBJECTORS TO VACCINATION.

The number of children whose parents or guardians objected to vaccination under the terms of the Vaccination (Scotland) Act, 1907, was 905. This is the lowest number of "Conscientious Objectors" noted for many years. The figures for the past six years were as follows:—

1931	953
1932	965
1933	924
1934	1009
1935	935
1936	905

Total ... 5691

That number works out at about 46 per cent. of the total number of births over the same years, so that nearly one-half of the children under six years remain unvaccinated.

TABLE XII.—Conscientious Objectors to Vaccination.

Parish or Burgh	Parish or Burgh	Parish
Denny and Dunipace ... 37	Airth ... 26	Balfron ... 6
Denny and Dunipace Burgh ... 37	Falkirk ... 100	Baldernock ... 2
Gorgunnoch ... —	Grangemouth ... 76	Buchanan ... —
Kilsyth ... 24	Grangemouth Burgh ... 83	Campsie ... 39
Kilsyth Burgh ... 98	Larbert ... 91	Drymen ... 5
Kippen ... 1	Muiravonside ... 97	Fintry ... —
Logie ... 2	Stamannan ... 52	Killearn ... 2
Bridge of Allan Burgh ... 3		Strathblane ... 2
St Ninians ... 116		
Stirling ... 3		
Central Area ... 321	Eastern Area ... 528	Western Area ... 56

Total for whole County, 905.

DIABETES—PROVISION OF INSULIN.

This drug may be supplied free to such patients as are unable to obtain it for themselves without assistance, in accordance with the Public Health (Scotland) Amendment Act of 1925, but it is supplied on the understanding that its administration is under the advice and care of a medical practitioner. Patients who are insured under the National Health Insurance Acts, however, would be prescribed for by their panel doctor in the usual way.

During the year 28 patients were supplied with the drug by this department, the total amounting to 235,200 units. Since 1927 when the scheme began, the demand has grown rapidly, the amounts supplied yearly being:—in 1927, 28,000 units; in 1928, 42,500; in 1929, 63,000; in 1930, 93,000; in 1931, 77,000; in 1932, 99,000; in 1933, 124,000; in 1934, 189,000; in 1935, 175,000; and in 1936, as above mentioned, 235,200.

VI.—PORT SANITARY ADMINISTRATION.

During 1936 the number of vessels entering the Port of Grangemouth was 1718, as shown below:—

	Number.	Tonnage.
(1) Foreign... ..	1103	1,214,001
(2) Coastwise	615	235,856
	<hr/>	<hr/>
(3) Total	1718	1,449,857

The number of ships subjected to measures of rat destruction was two, and five dead rats were recovered.

One vessel was fumigated by sulphuric acid gas, and one by H.C.N.

Deratisation Certificates were given in each case, and 84 Deratisation Exemption Certificates.

VII.—WORKSHOPS AND WORKPLACES.

The following is a copy of the formal Annual Report required by the Home Office with regard to the administration of the sanitary provisions of the Factory and Workshop Act of 1901:—

I.—Inspection of Factories, Workshops and Workplaces, Including Inspections made by Sanitary Inspectors.

Premises (1)	Number of		
	Inspections. (2)	Written Notices. (3)	Occupiers presented. (4)
Factories (Including Factory Laundries) ...	91	1	—
Workshops (Including Workshop Laundries)	376	1	—
Workplaces (Other than Outworkers' premises)	4	—	—
Total... ..	471	2	—

2.—Defects Found in Factories, Workshops and Workplaces.

Particulars. (1)	Number of Defects			Number of offences in respect of which Prosecu- tions were instituted. (5)
	Found. (2)	Remedied. (3)	Referred to H.M. Inspector. (4)	
<i>Nuisances under the Public Health Acts:—</i>				
Want of cleanliness	6	6	—	—
Want of ventilation	—	—	—	—
Overcrowding	—	—	—	—
Want of drainage of floors ...	—	—	—	—
Other nuisances	3	3	—	—
Sanitary { Insufficient	2	1	—	—
Accommo- { unsuitable or defective	—	—	—	—
dation { not separate for sexes	1	1	—	—
<i>Offences under the Factory and Work- shop Acts:</i>				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Other offences	—	—	—	—
(Excluding offences relating to outwork and offences under Sections mentioned in the Schedule to the Scottish Board of Health (Factories and Workshops Transfer of Powers) Order, 1921.)	—	—	—	—
Total	12	11	—	—

The inspections numbered 471, of which 91 were of factories, 376 of workshops and 4 of workplaces. Two written notices were served and were duly complied with, no prosecution being necessary. The total number of defects found was 12, and 11 of these were remedied before the end of the year.

BURGH OF DENNY AND DUNIPACE.

Report on Services not transferred to the County Council.

The population of the burgh as at the 1931 census was 5512, and a police census taken during the year 1936 gave the following figures:—

	Males.	Females	Total.
Denny	2436	2357	4793
Dunipace... ..	430	398	828
	<hr/> 2866	<hr/> 2755	<hr/> 5621

There would not therefore appear to have been much increase.

Water Supply.

Mr. Cook, the Burgh Surveyor and Sanitary Inspector, reports that the supply from the two burgh reservoirs was adequate to cope with the demand except during part of the month of May, the whole of June and part of July, when it was found necessary to utilise the auxiliary supply from the Stirlingshire and Falkirk Water Board.

Drainage and Sewage Disposal.

Extensions were made to the sewerage system to drain a housing site of 17 acres, and it is probable that this scheme may be extended to include another building programme with additional sewers as required. Mr. Cook reports that 69 new buildings—mostly dwelling-houses—were connected to the sewerage system during the year.

The sewage disposal works continue to give excellent service, and the effluent comes well within the definition of a "standard effluent" as defined by the Royal Commission on Sewage Disposal. It is therefore in a satisfactory condition for discharge into a stream.

Housing.

Mr. Cook in his annual report gives the following general statement:—

Number of houses completed to date:—

1919 Act	84
1924 Act	182
1930 Act	150
1933 Act	—
1935 Act	68
Total ...	484

Number of houses at present under construction:—

1930 Act	16
1935 Act	68
Total ...	84

In carrying out decrowding operations under the 1935 Act Mr. Cook finds that people for the most part have been glad to avail themselves of the opportunity for improving their housing conditions. There have, however, been cases where a great deal of persuasion has been necessary to get an overcrowded family to remove from a house which was far too small for their needs but to which they seem to have been quite attached.

Sanitary Conveniences.

The following shows the number of water-closets in the burgh and the number of tenants using them:—

833 houses have a W.C. for each tenant.
426 houses have a W.C. for each 2 tenants.
87 houses have a W.C. for each 3 tenants.

Five houses are without a proper water supply laid on, but all of them have been represented, amongst others, as unfit for habitation.

Factory and Workshop Act.

Under this Act 58 inspections were made, 12 being of factories, 40 of workshops, and six of workplaces. No defects were found requiring formal written notice. The number of workshops in the burgh is 21.

BURGH OF BRIDGE OF ALLAN.

Report on Services not transferred to County Council.

The population of the burgh may again be taken as at 3000 approximately, although I notice that the Registrar General estimates it at 2858.

Water Supply.—The Burgh Engineer states that the reservoir, when full, contains upwards of 38 million gallons, giving an excellent and sufficient supply. The water is filtered through mechanical and sand filters.

Drainage and Sewage Purification.—The drainage and main sewers of the town gave very little trouble throughout the year. The sewage is discharged into tidal waters.

Housing.—The number of houses in course of erection is 28. These are for the relief of overcrowding and for re-housing persons displaced by the closure of uninhabitable houses. Four such uninhabitable dwellings were represented by me for closure during the year.

Sanitary Conveniences.—Mr. Blackadder reports that the number of water-closets used in common in the burgh is:—

By 2 tenants...	33
By 3 tenants...	5
By 4 tenants...	Nil
By more than 4 tenants...	Nil

There are no houses in which tenants do not have the use of a water-closet or dry-closet, and there are only two houses without indoor water supply and sink, but a sink with water supply has been fitted immediately outside the house door in each case under cover.

Factory and Workshop Act. — These were kept under observation, the number of inspections made being 60, of which 22 were of factories and 38 of workshops. No defects were found.